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ROYAL COMMISSION OF INQUIRY INTO CERTAIN  
DEATHS AT THE HOSPITAL FOR SICK CHILDREN AND  
RELATED MATTERS.

Hearing held  
8th floor  
180 Dundas Street West  
Toronto, Ontario

The Honourable Mr. Justice S.G.M. Grange

P.S.A. Lamek, Q.C.

E.A. Cronk

Thomas Millar

Commissioner

Counsel

Associate Counsel

Administrator

Transcript of evidence  
for

October 13, 1983

VOLUME 49

OFFICIAL COURT REPORTERS

Angus, Stonehouse & Co. Ltd.,  
14 Carlton Street, 7th Floor,  
Toronto, Ontario M5B 1J2

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ROYAL COMMISSION OF INQUIRY INTO CERTAIN  
DEATHS AT THE HOSPITAL FOR SICK CHILDREN  
AND RELATED MATTERS.

Hearing held on the 8th Floor,  
180 Dundas Street West, Toronto,  
Ontario, on Thursday, the 13th  
day of October, 1983.

- - - - -

THE HONOURABLE MR. JUSTICE S.G.M. GRANGE - Commissioner  
THOMAS MILLAR - Administrator  
MURRAY R. ELLIOT - Registrar

- - - - -

APPEARANCES:

P.S.A. LAMEK, Q.C.)	Commission Counsel
E. CRONK )	
D. HUNT )	Counsel for the Attorney-
L. CECCHETTO)	General and Solicitor General
	of Ontario (Crown Attorneys
	and Coroner's Office)
I.J. ROLAND)	Counsel for The Hospital for
M. THOMSON )	Sick Children
R. BATTY )	
D. YOUNG	Counsel for The Metropolitan
	Toronto Police
W.N. ORTVED	Counsel for numerous Doctors
	at The Hospital for Sick
	Children
B. SYMES	Counsel for the Registered
	Nurses' Association of Ontario
	and 35 Registered Nurses at
	The Hospital for Sick Children

(Cont'd)









APPEARANCES: (Continued)

D. BROWN	Counsel for Susan Nelles - Nurse
E. FORSTER	Counsel for Phyllis Trayner - Nurse
J.A. OLAH	Counsel for Janet Brownless - R.N.A.
B. KNAZAN	Counsel for Mrs. M. Christie - R.N.A.
P. CONNELLY	Counsel for Mr. & Mrs. Gosselin, Mr. & Mrs. Gionas, Mr. & Mrs. Inwood, Mr. & Mrs. Turner, and Mr. & Mrs. Murphy (parents of deceased children)
W.W. TOBIAS	Counsel for Mr. & Mrs. Hines, (parents of deceased child Jordan Hines)
J. SHINEHOFT	Counsel for Lorie Pacsai and Kevin Garnet (parents of deceased child Kevin Pacsai)
F.J. SHANAHAN	Counsel for Mr. & Mrs. Dominic Lombardo (parents of deceased child Stephanie Lombardo); and Heather Dawson (mother of deceased child Amber Dawson)

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VOLUME 49

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A/DM/ak

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---Upon commencing at 10:00 a.m.

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THE COMMISSIONER: Yes, Miss Cronk.

4

MS. CRONK: Good morning, sir.

5

DR. GRAHAM ELLIS, Resumed

6

DIRECT EXAMINATION BY MS. CRONK: (Continued)

7

Q. Good morning, Doctor.

8

A. Good morning.

9

Q. You will recall that when we

10

broke yesterday afternoon I had asked you whether or  
not by March 17th, 1981 with respect to Kevin Pacsai,

11

you had any remaining concern as to the validity of

12

the antemortem digoxin level which had been recorded

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at a level of greater than 10. You told me in that

14

respect that on March 17th, 1981 you did not have

15

any remaining concerns. Do you recall that evidence?

16

A. You mean in relation to the  
possible effect that the EDTA might have had.

17

Q. No, Doctor. I asked whether as

18

at March 17th you had any remaining concerns about

19

the validity of the level.

20

A. The validity of the level of  
the ---

21

Q. Of the antemortem level of

22

greater than 10; do you recall my asking you that?


23

A. Yes, and this was the middle

24

25





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1  
2 of the subsequent week, this was about the Tuesday  
3 or the Wednesday.

4 Q. This is the Tuesday, March  
5 17th?

6 A. Yes.

7 Q. And your answer to me was that,  
8 no, not at March 17th; do you recall that?

9 A. Yes.

10 Q. Dr. Costigan has testified in  
11 these proceedings, Dr. Ellis, that the sample which  
12 produced that level of greater than 10 was drawn by  
13 him at approximately 6:00, or 6:15, or 6:30 a.m. on  
14 March 12th, 1981 while the child was in the ICU.  
15 Kevin Pacsai we know died at approximately 10:10 a.m.  
16 on the same day, that is March the 12th, so the  
17 result of that is that the level, Dr. Costigan has  
18 said, the sample which Dr. Costigan has said that  
19 he drew was drawn some four hours prior to the child's  
20 death.

21 A. Yes.

22 Q. We know from Dr. Costigan and  
23 as well from Miss Allin's notes that we reviewed  
24 yesterday, that the last dose of digoxin was given  
25 to Kevin Pacsai on the Wednesday evening?

A. Yes.







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Q. And the sample was drawn by Dr. Costigan on the Thursday morning. With those facts in mind, Doctor, do you today have any concern as to the validity of that level of greater than 10 nanograms?

A. As to the validity, no. The only kind of slight rider that I have on that is, without having the digoxin book in front of me, wasn't this a sample that we had analyzed only a single tube of one dilution, and a single tube at another dilution. And so in that sense it was a little bit less reliable than our regular assay.

THE COMMISSIONER: Would you give me that again, please, Doctor? You say you did it ---

THE WITNESS: I think it was a very small quantity. Could I have the digoxin book, please?

MS. CRONK: Yes, Exhibit 32B, it is right beside you there. If you turn to Tab 45.

THE COMMISSIONER: Can you wait just a minute.

MS. CRONK: Yes, sir. Excuse me, Mr. Commissioner, it is possible the other copy is in this cupboard.

THE COMMISSIONER: Well, all right. Now, this is Tab 45, is it?





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MS. CRONK: Yes, sir, at page 23,  
March 13th, 1981, at page 23 of Tab 45.

4

THE COMMISSIONER: Yes, all right.

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MS. CRONK: Q. Doctor, you were  
starting to explain that because of the method used  
to perform this assay, that is the use of, as you  
recalled it, two separate tubes, you thought that  
that would produce perhaps a less reliable result  
than the normal assay; do I have that correctly?

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A. Yes. We have, because of  
sample volume considerations, had to report results  
prior to this when very small amounts had been  
required on a single tube, but it is our normal  
practice to obtain results on two tubes and to take  
an average.

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THE COMMISSIONER: I am sorry, if  
you look at page 23 you have one tube and I hadn't  
understood that. You have one tube for Item 4 and  
one tube for Item 5, that doesn't mean there were  
two assays on it.

THE WITNESS: No. I think the fact  
that we did one tube as Item 4 and one tube times 2.

THE COMMISSIONER: Yes.

THE WITNESS: Suggests to me that  
there were two tubes, yes, that one, the result on







1  
2 one tube where the straight serum was taken produced  
3 a result in excess of 4.7 or 5, and the result of  
4 the other tube were the dilution - I'm sorry, it  
5 wasn't in fact a dilution on this particular  
6 occasion, a small quantity was taken. As a result  
7 of that dilution, as a result of a smaller quantity  
8 being taken a result again of 4.7 above the  
9 top standard was obtained. So we had two tubes  
10 suggesting that it is greater than 4.7, and one  
11 which said that it is greater than 9.4. There  
12 appears to have been a little bit of confusion around  
13 this time about 5 or 4.7 and it appears at the  
technologist ---

14 THE COMMISSIONER: We can ignore  
15 the 5 and 4.7.

16 THE WITNESS: Yes.

17 THE COMMISSIONER: That does not  
18 concern me, but what does concern me though is, you  
19 say there was something not absolutely right about  
20 the method that you used in testing this. I want to  
find out what that was.

21 THE WITNESS: Yes. We were unable  
22 to be as thorough as usual in respect of duplicates.

23 THE COMMISSIONER: Tell me how?  
24 First of all tell me what you normally do.  
25







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THE WITNESS: Yes.

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THE COMMISSIONER: And secondly what  
you failed to do this time.

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THE WITNESS: If a large quantity  
of serum had been provided to us we would have  
normally assayed that sample in duplicate straight,  
in other words, taken the serum just as it is.

9

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THE COMMISSIONER: In duplicate,  
that is you normally do two assays on each?

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14

THE WITNESS: Yes, two tubes, whatever  
the dilution is we would do two tubes on each of  
those.

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THE COMMISSIONER: Let's take a  
look at the other one on the 13th of March.

THE WITNESS: Yes.

THE COMMISSIONER: Did you do two  
assays on each 6, 7, 8, 9, 10 et cetera?

THE WITNESS: Yes, we did. I am  
sorry, with the exception of Sample 8. This was  
a baby girl from our neonatal ward. You will see  
there is a notation there that one tube had to be  
taken because a very small quantity was provided,  
you see in relation to Sample 8?

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THE COMMISSIONER: That is duplicate,  
that is you have two tubes and you assay them, and





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in this case you only had one tube.

THE WITNESS: Yes.

THE COMMISSIONER: Why was it then -  
I take it the one tube was assayed once and the  
second tube was assayed in dilution, would that be  
it?

THE WITNESS: Yes.

THE COMMISSIONER: That is what the  
times 2 means?

THE WITNESS: Yes. Now, what I  
explained yesterday in relation to diluting samples  
relates to when sufficient sample is provided,  
in which we would take an amount of a fraction of  
the sample provided to us and we would add buffer  
to it. When very, very small quantities of material  
were supplied to us we would use a small volume of  
the actual serum provided to us because so little  
had been provided.

The usual amount put into a tube is  
50 microlitres, and then he says 50. If it is  
necessary to - if we expect the sample to be high  
then we may on some occasions put in 25 microlitres  
of that serum and we would normally do that if very  
small amounts of material have been provided to us.

THE COMMISSIONER: And it is because







1  
2 you expected it to be high, or that you suspected it  
3 might be high that you used a smaller quantity.

4 THE WITNESS: Yes. There was an  
5 indication on the requisition "Query digitalis  
6 toxicity", I think that is what it says, signed  
7 by Dr. Costigan. That prompted us to do the sample.  
8 On the first attempt when it was done we just had  
9 one shot at it because it was a very small amount,  
10 and because of this very small amount this procedure  
11 was adopted, and that is my only concern that this  
12 is a little bit unusual. I still believe that had  
13 we had a lot of samples available a result of this  
14 kind would have been obtained, that we would hopefully  
15 have gone on and further diluted it if necessary.  
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Q. All right. Doctor, so that I am clear in your evidence on this point then I take it that sitting here today your only concern with respect to the validity of that level relates to the fact that instead of the normal four tubes which would have been available to you, two were used and four were not available. Do I have that correctly?

THE COMMISSIONER: Normally they would have two tubes.

THE WITNESS: Normally we would have two tubes.

THE COMMISSIONER: You use two tubes of a certain quantity and if that went over the limit you would have enough left to use another tube, tubes diluted, is that right?

THE WITNESS: Yes.

THE COMMISSIONER: And then if you had enough and then still went over the limit you would do another dilution?

THE WITNESS: Yes.

THE COMMISSIONER: And carry on. In this case you suspected it would be more than 5 or 4.7?

THE WITNESS: There was a possibility, yes.







B.2

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THE COMMISSIONER: So, you used two tubes but you used one tube for the first assay and of a smaller amount so that you would have enough left for the second assay again using one tube?

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THE WITNESS: Yes.

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THE COMMISSIONER: Is that right?

7

THE WITNESS: Yes.

8

THE COMMISSIONER: And normally each time you do one you have two tubes and I take it in the postmortem assay you had enough to do it and dilute it?

11

THE WITNESS: Yes.

12

MS. CRONK: Well, we will come to the postmortem sample in a moment, Mr. Commissioner.

14

THE COMMISSIONER: Yes, all right.

15

MS. CRONK: Q. But so that I am clear on this antemortem sample, Doctor, and perhaps I simply skipped a step there. Had you had sufficient quantity on this sample, the first assay that you would have done would have been neat and you would have used, you would have had two tubes then?

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A. Yes.

21

Q. Is that correct?

22

A. Yes.

23

Q. All right. And had you had

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B.3

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enough sample when you came to dilute it and to do it  
times a dilution of two, which we know you did, you  
would again have had two tubes available not simply  
one?

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A. Yes.

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Q. All right, for a total of four?

8

A. Correct.

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Q. All right. And do I have it  
then correctly that your concern today and your only  
concern with respect to this level and its validity  
is the fact that in the aggregate there were only two  
tubes available?

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A. Yes.

14

Q. On those two assays instead of  
the usual four?

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A. That's right.

16

Q. All right.

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THE COMMISSIONER: Or in the usual ten  
as the case may be?

19

THE WITNESS: Yes.

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MS. CRONK: Well, but as it happens in  
this case it would have been four.

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THE COMMISSIONER: No, it might have  
been more.

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MS. CRONK: Well, in respect of those

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B.4

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two assays there would have been four. Had there been more assays you're quite right, Mr. Commissioner, there would have been more involved.

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THE COMMISSIONER: Yes, all right.

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MS. CRONK: Q. Doctor, do I understand it correctly as well that the purpose in your laboratory for using two tubes on, let's take hypothetically a first assay done neat without any dilution, the purpose of using two tubes in that instance is, the second tube is really designed as a quality control kind of testing measure. Do I have that correctly?

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A. Yes.

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Q. So, in other words, the results that you are seeking will be obtained on the first tube and you hope that a like result without discrepancy will be obtained in the second tube?

17

A. Yes.

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Q. And that is a way that is available to you to cross check the validity of the level that is coming out but you expect to get it without discrepancy?

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A. Yes.

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Q. Is that correct?

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A. Yes.

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B.5

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Q So that, Doctor, when that second tube, the second which is designed for a quality control purpose, if I can describe it that way, is not available, that does not necessarily mean that the level obtained in the first tube is inaccurate in any way?

A. No.

Q Simply that you weren't able to cross check it?

A. Yes.

Q All right. And that would apply to the first assay in this case that was done neat on this sample?

A. Yes.

Q And that would apply as well to the second assay that was done by diluting the remaining sample times two. Do I have that correctly?

A. Yes, by taking the half volume from the second sample.

Q Thank you, Doctor.

THE COMMISSIONER: May I now ask another question, which is probably getting ahead of where you want to be. But if you look on the 12th of March you will see in the last column, you will see obviously there are two tubes, two results given in







B.6

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all those instances which are pretty close together  
in each case. Strangely enough in the others for  
March 10th and March 13th there aren't.

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THE WITNESS: Yes.

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THE COMMISSIONER: Is there some  
reason for that?

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THE WITNESS: No, that is a little  
bit unusual, I have not usually seen these numbers  
like this here. We were testing a gamma counter, a  
new gamma counter around this time and we may well  
have recounted some of these tubes on March 12th and  
this may well represent the duplicates that were  
obtained as printed out by that gamma counter.

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MS. CRONK: Q. Okay. Doctor, with  
respect to this question of the two assays that were  
done, you have told us that on the first assay that  
was done neat a level off the maximum measurement  
capability of the test was recorded, that is, greater  
than 4.7 or greater than 5, whichever mathematical  
indicator was then being used. That was the result  
of the first assay. Do I have that correctly?

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A. The first single tube assay  
neat?

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Q. Yes.

A. Yes.





B.7

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Q. Was greater than 4.7 or greater than 5?

A. Yes.

Q. Then on dilution, and use of the second tube, that assay resulted in a level of greater than 10. Do I have that correctly?

A. Yes.

Q. All right. I take it then that in that respect, Doctor, the second assay that was done on dilution in fact confirmed the first assay result in the sense that both were very high and both off the maximum that could be measured by the assay equipment?

A. That is correct, yes.

Q. All right. And you have told us as well, Doctor, that in your view had more sample been available thus permitting further dilutions and further assays, you would have expected a like high result although you would have hoped that you would be able to keep diluting until you got a fixed level?

A. Yes.

Q. Do I understand that correctly?

A. I would have expected, but, you know, I obviously cannot know.

Q. All right. And in this





B.8

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situation your lab was put on alert from the outset with respect to this sample that there was some question of digoxin toxicity in the patient by virtue of that notation on Dr. Costigan's requisition?

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A. Yes.

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Q. All right. Will you lend your mind as well, Doctor, to the sampling that we discussed yesterday with respect to Janice Estrella. You will recall that yesterday we discussed the sample that had resulted in a level of greater than 4.7, that was the sample drawn from the leg vein post mortem and it resulted in a sample of greater than 4.7?

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A. Yes.

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Q. You then had a discussion with the Commissioner you may recall as to whether there was any mechanism available whereby the clinician or pathologist in the Hospital, the person intended to receive the results of the assay could be put on alert, or at least notified, that no further sample was available for further dilution. Do you recall that discussion with the Commissioner?

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A. Yes.

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Q. All right. And you told me yesterday as I understood it that one way that information could be communicated to the person who had originally







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requested the assay was during the course of a  
telephone conversation if the assay result was in  
fact reported orally by telephone the day that it  
had been conducted.

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A. Yes.

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Q. All right. I would ask you,  
Doctor, if you would turn to the Kevin Pacsai medical  
chart, which is Exhibit 83 - I'm sorry, it is Exhibit  
106, it is beside you. Would you turn to page 83 if  
you would, please. Do you have that, Doctor?

11

A. Yes.

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Q. All right. You will see, Doctor,  
on that page that in respect of Kevin Pacsai this  
level of greater than 10 that we have been discussing  
was reported ---

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THE COMMISSIONER: What is the exhibit  
number?

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MS. CRONK: Exhibit 106.

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THE COMMISSIONER: 106.

19

MS. CRONK: Q. If you could just wait  
a moment, Doctor.

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THE COMMISSIONER: Do you have that?

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THE WITNESS: Yes, thank you.

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THE COMMISSIONER: The page?

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MS. CRONK: I'm sorry, sir, page 83.

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B.10

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THE COMMISSIONER: Thank you.

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A. Yes.

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Q. All right. In that regard I take it in light of your previous evidence that the fact that there is an asterisk beside the greater than 10 level indicates that that is the first time that that level was report in writing on the cumulative report?

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A. It draws attention to the fact that this result was flagged today, was reported today.

Q. Well, Doctor, hasn't it been your evidence that when we see that indication, when we see an asterisk beside a level of that kind it is your understanding that that means that that level has never before appeared on one of these computer printouts, that it is appearing for the first time?

A. In the majority of cases that is correct, yes.

Q. All right.





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A. It is not invariably the case in that supposing we were to produce a computer print-out in the usual way with the flag and supposing it was necessary upon re-analysis to re-enter that result at some stage, perhaps further information was given, perhaps the quality of the sample or a different result had been obtained, so, we have already possibly produced a printout with a flag on it, then we come across new information and we substitute in the place the modified result let us say, then that will still contain a flag on it, even if it has been produced before. But in general terms what you say is correct.

Q. All right. Doctor, in respect of this particular level we know that that result was not available from assay until March 13th when the two assays were run. This printout is dated March 14th.

A. Yes.

Q. I take it that in that situation you have no reason to doubt that this is the first time this one is being reported?

A. That is correct, yes.

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Q. All right. And with respect to that level, Doctor, we see underneath the level a footnote drawing our attention to Footnote E, and we go to the bottom of the page, and we see an indication with respect to that level, there was insufficient quantity of the sample for further dilution.

A. Yes.

Q. And that footnote applies to that level?

A. It does, yes.

Q. So we see then, Doctor, that in some situations not only is it possible but it appears that in fact there is an indication contained on the biochemistry computer print-outs to alert the person who is receiving the report to the fact that no further dilutions and no further assay results in respect of that given sample are going to be available?

A. That is correct.

Q. And that appears to have happened in this case?

A. Yes.

THE COMMISSIONER: I take it that didn't happen in the Estrella case. Is that right?





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MS. CRONK: You recall, sir, that we  
looked at the chart yesterday.

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THE COMMISSIONER: Yes.

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MS. CRONK: That was not the case.

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THE COMMISSIONER: No. That is fine.

7

MS. CRONK: Q. Doctor, would you turn  
then, if you would, to Tab 45 again of Exhibit 32B.  
This time to page 24.

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As I understand it, Doctor, on March  
13th in addition to the antemortem sample that had  
been drawn and provided to the lab by Dr. Costigan,  
another blood sample in respect to Kevin Pacsai was  
also received in the Biochemistry Lab for assay.  
Do I have that correctly?

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A. Yes.

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Q. All right. And if we look at  
page 24 for the assay results on March 16th, 1981, we  
see reference to Sample No. D57970 which appears  
to have been a sample drawn at 11:00 a.m. on the  
13th of March, forwarded to the Biochemistry  
Laboratory by Pathology.

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Do you see that, Doctor?

22

A. Yes.

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Q. All right. This sample  
appears to have been assayed several times on March





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16th.

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Can you tell me first, Doctor, if  
you know why the sample was not assayed on March  
13th?

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A. I don't know, but the time  
given on this page is 11:00 a.m., and our regular  
batch of digoxin assays would start around 10:30 or  
11 and we would do one batch per day under normal  
circumstances, and anything received after that time  
would be analysed on the next available batch which  
would be the Monday.

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Q. To help you with that, Doctor,  
the requisition form which applies to this sample  
and there is the same sample number appears at Tab  
44, and if you wish to look at this then we will be  
glad to get it for you. I don't think you need it  
at the moment. But there doesn't appear to be a  
date stamp indicating the time and the date on which  
the sample was received by the Biochemistry Laboratory.

19

Do you know whether or not the sample  
was received on the 13th or on the 16th?

20

A. I don't know for sure, no.

21

Q. All right. The requisition

22

form as it happens, Doctor, is signed by Dr. Cutz  
of Pathology.

23

24

25







1

2

A. Yes.

3

Q. And there is an indication on

4

the requisition form that the sample is heart blood  
drawn at autopsy.

5

6

Was it your understanding at the time  
that the assays were conducted on this sample on March  
16th that this was blood drawn at autopsy by the  
Pathology Department? Did you know that?

7

8

9

A. Sorry?

10

Q. Did you know on March 16th

11

that this sample was a blood sample drawn at autopsy  
for the Pathology Department of the Hospital?

12

13

A. Yes. Simply by inspection of

14

the book I would have known that because it is  
A74/81 which is an autopsy number and it indicates  
that the Pathology Department has originated this.

15

16

Q. All right, Doctor.

17

And I take it that sample we can see  
was assayed several times on March 16th. The first  
assay does not appear to have been an assay on a  
neat basis because we do not see a result there.  
There is a dash in the results column. Am I  
interpreting that correctly?

18

19

20

21

22

A. Yes.

23

Q. So it appears the first assay

24

25





1  
2 conducted was at a dilution of times 5 and the result  
3 of that assay was 24 nanograms?

4 A. Oh, sorry. There is a dash  
5 there. You say that we didn't assay ---

6 Q. I asked you whether or not I  
7 was interpreting the dash correctly to mean that no  
8 level was obtained.

9 Had an assay been run neat would there  
10 not be an indication that it had to be repeated or  
11 an indication that it was greater than 4.7 or greater  
12 than 5?

13 A. Yes. Not necessarily in that  
14 column. Okay? In fact if you look over to the left  
15 of this where you see 12 autopsy number Pacsai K, in  
16 brackets there is a level 14.3 up.

17 Q. Yes.

18 A. Which I interpret to mean  
19 14.3 approximately.

20 Q. I see. All right.

21 A. Okay.

22 Q. So you take from that then  
23 the sample was originally assayed neat?

24 A. Yes.

25 Q. And the result was achieved  
over the maximum?





1

2

A. Over the maximum.

3

Q. Greater than 4.7 or 5?

4

A. Greater than 4.7 or 5, and

5

the computer, because it will extrapolate beyond that point and give, you know erroneous results beyond that point, actually calculated this out to be 14.7.

6

7

Q. All right. And then I take

8

it the sample was assayed again and this time on a dilution of times 5, and the result this time was 24 nanograms?

9

10

A. Yes.

11

12

Q. And then the sample was

assayed again, also at a dilution of times 5 and this time the result was 25.5 nanograms?

13

14

A. Yes.

15

Q. Is that correct?

16

A. Yes.

17

Q. And then finally it was

assayed again and this time at a dilution of times 10, and this result was 26 nanograms?

18

19

A. Yes.

20

Q. All right. Doctor, did you

personally perform those assays?

21

22

A. I personally didn't, no.

23

Q. Were the results of those

24

25







1

2

assays drawn to your attention on March 16th?

3

A. Yes.

4

5

Q. What was your reaction when you learned that there was a level of 26 nanograms on that sample?

6

7

8

A. My reaction was that in the light of my experience in relation to antemortem samples that this result appeared elevated. Okay?

9

10

11

It also brought to mind the Estrella autopsy sample where a high result had been obtained on autopsy sample.

12

Q. Yes.

13

14

15

16

A. It tied in as far as I was concerned with the antemortem sample, the sample that I later learned to have been ante mortem. Okay? In other words the one that Dr. Costigan had obtained from haematology.

17

Q. Yes.

18

19

20

21

22

A. And in association with the digoxin toxicity, the query digoxin toxicity mentioned on the requisition, and the concerns that Dr. Costigan had expressed in relation to this particular child, it kind of tied in with a death associated with digoxin toxicity.

23

Q. I take it then, Doctor, that

24

25





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2

when you were informed of this level first, you  
recognized that level as being very high.

3

4

A. In the light of my previous  
experience, yes.

5

6

Sorry, because I have only got a  
previous experience of a couple of autopsy samples  
by this time.

7

8

Q. All right.

9

10

A. But the kind of numbers that  
we usually see in antemortem samples, or our experience  
in that respect.

11

12

Q. Okay. Based on your experience  
with all the digoxin assays that you had done  
previously ---

13

14

A. Yes.

15

16

Q. - we know that you had occasion  
to do only two assays on postmortem samples. The  
second was Estrella?

17

18

A. Yes.

19

20

Q. And all the others were ante-  
mortem samples?

21

22

Q. In the context of that  
experience I take it this level was very high?

23

24

A. Yes, it was.

25





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Q. And in respect to this level particularly when you were informed of it did you then check the results that were reported by the technician in the digoxin books to satisfy yourself as to whether or not the various assays had been performed correctly?

A. Yes. I think in fact I was involved even prior to this, you know, this analysis being done. I think I was involved back on the Friday because I don't know whether my techs would necessarily have analysed the samples so many times of their own - at their own initiative.

Q. Do you recall instructing them to do so?

A. I don't recall specifically, no.

Q. But it is possible that you did?

A. That is right.

Q. On a Monday when the assays had been completed did you then review the various results in an effort to satisfy yourself one way or another as to whether the assays had been performed correctly?

A. Yes, yes.







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Q. And was there any doubt or issue in your mind as to whether or not those assays had been performed correctly?

A. No.

Q. All right. As far as you were concerned was that level then a valid level?

A. Yes.

Q. And with respect as well to the facts that came to mind when you heard of the level - you have told me it brought to mind the Estrella levels that you had experience with previously?

A. Yes.

Q. Do I have that correctly?

A. Yes.

Q. And we know, Doctor, this is the third postmortem sample that had been assayed in your laboratory. It is the second with a very high result?

A. Yes.

Q. The first was Estrella at 72 and now you are getting a 26 on Pacsai?

A. Yes.

Q. In that context, Doctor, did the level 26 nanograms on Pacsai and the level





1

2

of 72 nanograms on Estrella which you were then thinking about suggest to you that the deaths of those two children may have been caused by digoxin intoxication?

3

4

5

A. Yes.

6

7

Q. Right. Did it occur to you at that time that there might have been something sinister with respect to those deaths?

8

9

A. No.

10

11

Q. Having heard of the level of 26, and having then had come to your mind the recollection of the result achieved on Friday, the greater than 10 level on the antemortem sample ---

12

13

A. Yes.

14

15

Q. - did the level of 26 nanograms on the postmortem sample in your mind corroborate or confirm the accuracy of the level on Friday?

16

17

A. Yes.

18

19

Q. What then, Doctor, did you do with respect to that level of 26 by way of reporting it to others in the Hospital once you learned of it?

20

21

A. I think Dr. Costigan visited the laboratory on a number of occasions during this week. There were telephone calls. The result

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was discussed with Dr. Hill and I think there were  
various meetings between himself and myself and  
Dr. Söldin in this regard if we could throw any light  
on this particular matter.

- - - - -







D/DM/ak

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Q. Perhaps we can deal with that in stages, Doctor. On March 16th the assays were conducted and the result comes out at 26 nanograms. You told us yesterday that you believed you were speaking to Dr. Costigan on March 16th because of the implications of the potential effect of EDTA in the sample that had been taken ante mortem.

A. Yes.

Q. That conversation took place you told us you thought on March 16th.

A. That's right.

Q. During the course of that discussion with Dr. Costigan concerning the antemortem level, did you inform him at that time of the result on the postmortem level?

A. He was informed as soon as this result became available, which would be later on in the day of March 16th.

Q. All right.

A. I think Mary's notes suggest that she passed Dr. Costigan on to me on the Monday morning, isn't that --

Q. That is correct.

A. Right. She made those notes actually about a week after, after the two further





D2

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deaths, so that was her recollection on that occasion.

3

Q. Then as best you can recall

4

the postmortem level was reported to Dr. Costigan on

5

March the 16th?

6

A. Yes.

7

Q. Did you personally discuss

8

the matter with Dr. Costigan that day as best you

9

can recall it?

10

A. Very early during that week,

11

very early during that week.

12

Q. Once you had learned of the

13

level of 26 nanograms, bearing in mind that you were

14

now thinking of as well of postmortem levels on

15

Janice Estrella, did you lend you mind as to how a

16

level of 26 nanograms might have been achieved in

17

the body of Kevin Pacsai?

18

THE COMMISSIONER: Before we go on

19

any further, could we just look at Exhibit 209 for

20

a moment. That sample on Monday morning that we are

21

talking about was the antemortem sample.

22

MS. CRONK: That is correct.

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THE COMMISSIONER: It was not the

24

postmortem sample. Did you inform Dr. Costigan about

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the post mortem, I thought that was the question

you asked.





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MS. CRONK: It was, sir, and I understood Dr. Ellis to say that during the course of the Monday as soon as the post mortem ---

THE COMMISSIONER: Yes, the basis is Exhibit 209 and I think that that is all the discussion of the ante mortem, isn't it?

THE WITNESS: Yes, the first thing on the Monday morning, yes.

THE COMMISSIONER: Do you remember if you told Dr. Costigan about that postmortem sample?

THE WITNESS: No. The postmortem sample, a flow sheet prepared at around that time indicates that the postmortem sample as far as we could tell had come in in the afternoon of Friday and the postmortem sample had not been analyzed.

THE COMMISSIONER: No.

THE WITNESS: It had not been analyzed by Monday morning, we would only start to analyze it at around 10:30 or 11:00.

MS. CRONK: Q. My question to you and perhaps I will try to put it more clearly, Doctor. We know that you spoke to Dr. Costigan, you have told us, early in the morning on Monday, March 16th with respect to the antemortem sample and the level that had been achieved on that sample.







D4

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A. Yes.

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Q. And that was the time when you

4

had the discussion concerning the possible implica-

5

tions of EDTA ---

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A. Yes.

7

Q. --- in the ---

8

A. Well, then or subsequent.

9

Q. Did you then later in the day

10

after the assay results were available on the post-

11

mortem sample again speak to Dr. Costigan and alert

12

A. I believe that this happened.

13

I cannot remember specifically telephone calls on that

14

day or the next, exactly what time of the day they

15

were.

16

Q. I take it though, Doctor, that

17

when you saw that level of 26 nanograms, having in

18

mind the Estrella levels, that you were concerned?

19

A. I was concerned, yes, sure.

20

Q. And in light of that concern

21

it would be likely I suggest to you that you would

22

attempt to communicate that level at least to

23

Dr. Costigan with whom you had spoken early in the

24

morning about the antemortem level?

25

A. Yes.





D5

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Q. Now, Doctor, at the time you were thinking about those levels, the results of the postmortem sample on Estrella and on Pacsai, did you lend your mind as to a way in which a level of 26 nanograms post mortem and a level of greater than 10 ante mortem could have resulted in Kevin Pacsai?

A. The way in which this could have occurred?

Q. Yes.

A. In other words, what this might mean, what these results might mean.

Q. I am interested, Doctor, in what to the best of your recollection you were thinking at the time.

A. Yes.

Q. You have seen two, what you have described to me as very high levels.

A. Yes.

Q. On Estrella and on Pacsai.

A. Yes.

Q. The two come together in your mind on March the 16th when the Pacsai postmortem result is available. You know by that time that that child had a high antemortem level of greater





D6

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than 10 and now has a high postmortem level of 26  
nanograms.

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A. Yes.

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A. Yes.

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Q. And in your view what were the  
possible explanations as to how that level could have  
been achieved?

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A. Well, basically during this,  
the period of this week, I would say that this was  
an unexplained death, okay, associated with high  
digoxin in the postmortem and antemortem plasma of  
this child. In addition to this we had the previous  
result on Estrella, it was unexplained death.

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This particular death had been associated  
with clinical indications which might be compatible  
with digitalis toxicity, okay. So there were various  
possibilities that were discussed, one of which may  
be that the medication provided, given to the child,  
or provided by the manufacturers was in fact not at  
the concentration stated. Okay. That was one  
possibility.







D7

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Q. Doctor, may I stop you there  
just for a moment?

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A. Yes.

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I am obviously interested in  
the answer you are giving and I wish you would  
continue with it. For the moment I would like to  
know what was in your own mind and if the factors  
that you are now explaining and about to explain are  
things that occurred to you, then please continue.

I would like to know what was in your  
mind when you learned of that level as to how it  
could have been achieved, if indeed you thought about  
the matter.

14

A. Sure I thought about the matter,  
yes.

15

16

Q. Was there any explanation that  
presented itself to you?

17

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A. No. As I say during that  
week it was an unexplained death, right, of which  
there were various possibilities and there were  
various meetings that took place during that week  
with various parties at which suggestions were made  
as to what might be the cause of this death. One  
suggestion, I think suggested by Dr. Soldin was that  
there was a medication problem. The medication itself





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was - perhaps the manufacturer, for example, had produced a bad bottle that contained more of the digoxin than it should have contained, it didn't contain the stated amount on the label, that was one suggestion.

Q. And that you said was made by Dr. Soldin you think?

A. I have a vague recollection that - he has a lot of experience with drug administration and therapeutic drugs, and I think this idea came from him, okay. Now, he may not remember making that suggestion.

The other possibility is an error has been made in respect of this medication. In other words, somebody wrote out a prescription, perhaps not clearly, perhaps the decimal point slipped, perhaps the prescription or the indication of administration was misread by the person who actually was responsible for giving the dose to the child. So during that week, you know, the possibility of a medication error of some kind was active in our minds.

Q. Was there anything else, Doctor, that occurred to you at the time as being a possible explanation for these levels?





D9

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A. You mean in respect of foul  
play?

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A. Yes.

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Q. But you have also told me that  
it did then occur to you that those deaths might  
have been caused by digoxin intoxication?

14

A. Yes.

15

16

17

18

Q. You told me what was in your  
mind and apparently in the minds of others at the  
time with respect to the possible medication error  
being the explanation for these levels, and I take  
that to be the Pacsai levels?

19

20

21

22

A. Well, the Pacsai and possibly  
the Estrella levels, but it was particularly the  
Pacsai that was focusing our attention at this  
particular time.

23

24

25

Q. When you reported the Pacsai  
postmortem level to Dr. Costigan, did you tell him







D10

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about the Estrella level?

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A. Yes.

4

Q. And would that have been at the

5

same time you told him about the Pacsai postmortem

6

level?

7

A. Very close to that.

8

Q. Other than Dr. Costigan, you

9

have told us - you told me I believe that you spoke  
to Dr. Hill?

10

A. Yes.

11

Q. When did you do that?

12

A. Early during that week, either

13

the Monday or the Tuesday.

14

Q. Monday, March 16th or Tuesday,

15

March 17th?

16

A. Yes.

17

Q. Did you tell Dr. Hill at that

18

time about the Pacsai antemortem and postmortem levels?

19

A. Yes.

20

Q. Did you tell him as well about

21

the Estrella postmortem levels?

22

A. Yes.

23

Q. Did you report those levels or

24

discuss them with any others other than Dr. Costigan  
and Dr. Hill over those two days?

25

25





D11

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A. I think those were the major people.

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Q. You mentioned that in respect to the possible explanations that were put forward for these levels, one you thought was put forward by Dr. Soldin. Did you then discuss the Pacsai antemortem-postmortem levels with Dr. Soldin?

9

A. Yes.

10

Q. Over the course of those two days?

11

A. Yes.

12

13

Q. Do you recall when you spoke to Dr. Soldin?

14

A. No.

15

16

Q. Did you tell Dr. Soldin at the time that you told him of the Pacsai levels about the Estrella postmortem level?

17

A. I am sorry?

18

19

Q. Did you tell Dr. Soldin when you told him about the Pacsai levels, did you as well tell him about the Estrella postmortem levels?

20

21

A. I think there was a meeting, you know, there were meetings, in view of these events I think Dr. Hill discussed with both of us what our understanding is of these events was and I think it

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came up in conversation. But exactly when I couldn't  
directly recollect.

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Q. Other than Dr. Costigan, did

you speak to any of the clinicians who had been  
involved in the care of either of these two children  
to report to them then the postmortem levels that  
had been obtained?

A. During that week or on

specific days?

Q. All right, the beginning of

that week once the Pacsai postmortem level was made  
known to you.

A. I think in the early part of

the week Dr. Fowler was involved but I didn't  
specifically phone him to my knowledge on the Monday  
to give him specific instructions, specifically that  
result.

Q. Did you have any discussions

with Dr. Taylor at that point with respect to the  
Estrella postmortem levels?

A. No.

Q. Did you have any discussions --

I am sorry.

A. Yes, I didn't have any.

Q. Do you recall having any





1  
2 discussions with any other member of the Pathology  
3 Department with respect to the Estrella levels at  
4 that stage?

5 A. During this week? During this  
6 week I had a recollection of meeting with a  
7 pathologist, an incidental meeting at which both  
8 levels were discussed. Okay. I think I indicated  
9 to you at our previous meeting I believe that to be  
10 Dr. Cutz.

11 Q. Do you recall when you met  
12 with Dr. Cutz?

13 A. No. You indicated to me as  
14 well that in testimony he said that I had come to  
15 see him during that week, and that would be something  
16 that I hope I would have done, but I do not specifically  
17 remember that particular meeting. We will come to  
18 tissue samples later that he alluded to and until  
19 you mentioned it I couldn't remember the exact  
20 mechanism whereby those - whereby I had known the  
21 Virology Department had tissue samples. But apparently  
22 he indicated he had told me about them.

23 Q. Doctor, I will come back to  
24 that because we are getting a little bit ahead of  
25 ourselves.

A. I am sorry.







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3 THE COMMISSIONER: Before you come  
4 back to it I am struggling with this, Ms. Cronk.  
5 Where is it leading, why is it a leading matter,  
6 and it may matter, and maybe I am not thinking this  
7 through clearly, what he thought at the time and  
8 who he spoke to, does that matter, tell me?

9 MS. CRONK: There are two areas,  
10 Mr. Commissioner. I am going to be asking Dr. Ellis  
11 about discussions he had with Dr. Hill that I under-  
12 stand he had on the 17th of March, and as to what  
13 actions were taken by them at that time to investigate  
14 these levels further.

15 I am going to be asking him as well  
16 about his discussion, which we have heard from  
17 Dr. Cutz took place and what he did as a result of  
18 it.

19 THE COMMISSIONER: There is no  
20 question it is interesting looking at the greater  
21 picture, but remember I am just here to find out  
22 the cause of death.

23 MS. CRONK: I understand that,  
24 Mr. Commissioner.

25 THE COMMISSIONER: What he did and  
indeed what they thought at the time wouldn't seem  
in the face of it to be relevant but maybe I am wrong.





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MS. CRONK: My only purpose in asking those questions is what possible explanations presented themselves to Dr. Ellis and the others when they discussed this particular issue.

THE COMMISSIONER: What - how does that help us?

MS. CRONK: Because I am now going to be asking the Doctor what was done to investigate these possibilities further and whether there was any result reached as a result of those investigations that influenced their opinion as to how these children had died.

-----





BmD.jc  
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THE COMMISSIONER: Well, obviously you think that will help, I'm not sure. Nobody is objecting to it except me. The problem is I'm afraid everybody is going to pursue it and I am going to go quietly to sleep.

7

8

9

10

MS. CRONK: Well, I am in your hands, Mr. Commissioner. It is my intention now to ask Dr. Ellis what was done as a result of those possibilities, to follow up, to investigate how those levels had resulted.

11

THE COMMISSIONER: Okay.

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MS. CRONK: Q Dr. Ellis, you have told us that one of the possibilities that was put forward was that there had been a medication error, an error with respect to the drug itself, I take it by the manufacturer or distributor of the drug. What was done with respect to that possibility to investigate whether or not that had in fact happened?

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19

20

21

A. A bottle of the oral preparation lanoxin was obtained from the ward and was assayed on the 18th of March under page 26 of the exhibit that you gave me.

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23

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Q All right. Are you referring now, Doctor, to the entry at page 26, Item No. 14?

A. Yes.







E.2

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Q. And Item No. 12?

3

A. Yes.

4

Q. And what were the results of those assays?

5

6

A. Yes, those results, when calculated out supported the result that the manufacturer claimed was in that particular preparation.

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8

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Q. Well, I'm not sure I understand that, Doctor. As a result of the assays, once the results were calculated out, did you have any concern, any further concern or continuing concern that there had been an error with respect to the drug itself, that it did not contain what the manufacturer had described it to contain?

14

A. No, I didn't have any concern.

15

16

17

Q. All right. So, that possible explanation I take it was ruled out as a result of those assays?

18

A. Yes.

19

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Q. All right. Doctor, you have told us that another possible explanation that presented itself was an error in prescription, either in the transcribing of the dose that had been ordered or in the misinterpretation of the actual dosage that had been ordered. Was anything done in which you were





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involved to check the doses that had been ordered  
for Kevin Pacsai and to determine whether or not the  
appropriate doses had been given?

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A. Not on my part, no.

6

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9

Q. All right. Doctor, then with  
respect to the level itself, you have told us that you  
had a discussion with, as you recalled it,  
Dr. Cutz. To assist you in that regard you have told  
us that you don't recall actually seeing Dr. Cutz.

10

A. Yes.

11

Q. Is that correct?

12

A. Not right now, no.

13

14

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16

17

18

Q. All right. Dr. Cutz' evidence  
in that regard, Dr. Ellis, to be fair is found at  
Volume 42, Mr. Commissioner, at page 8555. Dr. Ellis,  
I am simply going to read to you what Dr. Cutz'  
recollection of the events of March 18th are with  
respect to discussions that he recalls that he held  
with you:

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"Q. All right. And you mentioned as  
well, Doctor, that you had a discussion  
that day (that's March 18th) with  
Dr. Ellis?

"A. Yes. Dr. Ellis came to see me  
early afternoon the same day and he





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"told me again, saying that the high level- he came to talk to me about this high level of digoxin in the sample. He came to ask me specifically if there would be a sample of heart muscle available for analysis to determine or compare the levels in the serum versus the one in the heart muscle, to sort of give some explanation, possible explanation of this high blood level.

"Q. All right. And was there a sample of heart muscle available?

"A. No, I had not specifically saved a sample for toxicology purposes but I did save a sample for virological investigation, which was sent to virology. So, I told him he should check with virology if such sample is still available."

He was then later asked:

"Q. Other than the request made by Dr. Ellis of you for a heart muscle specimen, did you have any other discussions with Dr. Ellis regarding





E.5

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"that level at that time?

3

"A. Yes. I was asked -- I had

4

discussions regarding as to how one

5

should interpret this result, and I

6

was asking him specifically about the

7

assay to see, in terms of, you know,

8

whether there was a possibility of

9

an error in the assay and whether

10

they should not recheck these things. He

11

indicated to me that it had been re-

12

checked and they felt quite confident

that this is a true result.

13

"Q. That is what he indicated to you

14

when he saw you on the 18th?

15

"A. That is correct."

16

Doctor, does that evidence help you

17

in any way to recall whether or not you had a

18

discussion with Dr. Cutz on March 18th and, if so,

what the nature of the discussion was?

19

A. It doesn't on that specific

20

day, no.

21

Q. Do you recall going to see

22

Dr. Cutz and inquiring of him whether or not any heart

23

tissue or heart muscle specimen was available and in

24

his possession that might be available for digoxin

25

assay?







E.6

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A. No, I don't recall, no, I'm afraid.

4

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Q. Do you recall any discussion with him that week as to whether or not the assay itself had been performed correctly and whether the level that had come about as a result of the assay was in your view valid?

8

9

A. No, I don't remember the specific content of any conversation with him.

10

11

Q. All right, Doctor.

12

13

14

A. But I don't remember the majority of the other people that I met that week either, but even, you know, I recognize that this is going to be an important issue but I just don't remember.

15

16

17

Q. All right. I take it, Doctor, you don't recall one way or another, you don't remember one way or the other?

18

A. Oh, no, no.

19

20

21

22

Q. Doctor, with respect then to this level of 26 nanograms on the postmortem sample from Kevin Pacsai. You have told us about the assays that were conducted on March 18th to check the actual digoxin medication itself?

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A. Yes.





E.7

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Q And you have told us that you were not involved in the checking of any doses that may have been prescribed for Kevin Pacsai and checking as to whether or not the prescribed doses were actually given in the appropriate quantities. Did you personally, after March 17th and on March 18th or thereafter, take any further steps to investigate the validity of that level or to explore any explanation as to why that level had been obtained?

A In relation to general discussions that took place during that week there was a discussion between myself and some of the people who I believe to have been either a cardiologist or a pathologist in relation to tissue samples.

Now, I have asked each of them if they remember any conversation and they don't seem to be able to remember it. But somebody at a fairly senior sort of level, in my vague recollection said, you know, could we assay some tissue samples. I can't remember the exact context under which we were going to do these tissue samples.

Q All right. Doctor, I will come back to the whole area of the assays that were conducted in respect of tissue samples but for the moment I take it that you can't recall or remember who raised that suggestion with you?





E.8

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A. No.

3

Q. With respect to this child?

4

A. With respect to this child, no.

5

Q. All right. Leaving aside for

6

the moment the issue of tissue samples and assays that  
may or may not have been conducted on those kinds of

7

samples, did you personally do anything further to

8

investigate or explore the accuracy of the 26 nanograms

9

postmortem level on Kevin Pacsai?

10

A. I don't think so.

11

Q. To help you, Doctor, you

12

referred me earlier to March 18th and the assays that

13

were conducted then on the digoxin per se. Could I

14

refer you to the entries of the assays done on March

19th which also appear in the digoxin book on page 26.

15

A. Yes.

16

Q. Do you have that, Doctor?

17

A. Oh, yes.

18

Q. All right. We see at Items 4

19

and 5 reference to Kevin Pacsai, in brackets (autopsy)

20

the sample number in this case, in both instances is

21

recorded as A74/81. I take that to refer to the

autopsy number for Kevin Pacsai. Do I have that

22

correctly, No. 74/81?

23

A. Yes.

24

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E.9

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Q All right. Can you tell me, Doctor, what those samples were that were being assayed on the 19th of March?

A Oh, yes. These were the samples that we had analyzed previously. So, although we had done everything neat times 5 times 10 on March the 16th we thought we had really better check it again in view of what had happened. So, we did check it again.

Q All right. And I take it then when you say you were checking it again it is the same sample that came from Pathology, the blood sample from autopsy, and it is Sample No. D57970 that you had assayed on March 16th?

THE COMMISSIONER: What it is is A74/81?

THE WITNESS: Yes.

MS. CRONK: That I believe, Mr. Commissioner, refers to the autopsy number.

THE COMMISSIONER: Yes, that's right.

THE WITNESS: Yes. It was often the case, and I am not quite sure whether it still is the practice or not, but when autopsy samples are sent to various places in the Hospital, particularly Biochemistry, the actual name of the patient is not always given.





E.10

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Q. All right.

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4

A. Okay. So, we may well have received a sample identified by an autopsy number.

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Q. Doctor, I take it though that with respect to the assays that were done on March 19th they were on the same autopsy blood sample that had been provided to you on March 16th?

8

9

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11

A. Yes.

Q. All right. And that assay was done first on that sample at a dilution of times 10. Do I have that correctly?

12

13

14

A. Yes.

Q. Just as it had been done on March 16th?

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16

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A. Yes.

Q. And the result on March 19th that a dilution of 10 was 25 nanograms?

A. Yes.

Q. All right. And it was diluted again and re-assayed at times 20 and this time the dilution was 24 nanograms?

A. Yes, after multiplying that it was 24.

Q. All right. And I take it, Doctor, that those assays were done on March 19th as





E.11

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another form of control or cross check measure that you were undertaking to ensure that the assay results that you had obtained on March 16th were indeed accurate?

A. Yes.

Q. And what was your conclusion in that regard on March 19th as a result of these two further assays?

A. That as measured by our assay the results of March 16th were in fact valid and reasonable results.

Q. All right.

A. As confirmed by our assay.

Q. All right. Doctor, did you as well have occasion to send a portion of that same sample to Mount Sinai Hospital for assay purposes at that hospital?

A. That is right, yes. I did send an autopsy sample on Pacsai to Mount Sinai.

MS. CRONK: Mr. Registrar, could you give the witness if you would Exhibit 32A.

THE COMMISSIONER: Before we do that, can you just tell me, what are those figures? By all means do give it to him, but those figures circled 2.5 and 1.2, what do they stand for on page 27?





E.12

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THE WITNESS: Page 27?

3

THE COMMISSIONER: Yes.

4

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THE WITNESS: Oh, yes. The figures circled is the actual result obtained on the dilution. On the diluted sample we got a result in our assay ---

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7

THE COMMISSIONER: Yes. No, I see, and you multiply that by 10 or by 20 as the case may be.

8

9

THE WITNESS: Yes.

10

11

THE COMMISSIONER: I see, all right, thank you.

12

13

MS. CRONK: Q Doctor, I would ask you to turn if you would to Tab 34, please.

14

A. Yes.

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Q. Doctor, this appears to be a form of miscellaneous requisition form, it is an exhibit that was marked on the preliminary hearing with respect to Susan Nelles. Can you tell me what the requisition relates to?

19

20

21

A. Yes, the requisition is in fact a copy of the requisition that we sent to Mount Sinai, that accompanied the sample that we sent to Mount Sinai on March 19th.

22

23

24

25

Q. Well, I was going to ask you about that, Doctor. There is a date on it, March 19th.







E.13

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Is that the day that you sent the sample to Mount  
Sinai Hospital?

3

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A. That was the date that I wrote  
this requisition and I suspect it would have gone that  
day or the next day.

5

6

7

Q. All right. We see, do we not,  
a sample number on the left-hand side of the page of  
the requisition form and that's the same sample number  
as applied to the autopsy blood sample that was sent  
into your lab and assayed on March 16th; was the same  
autopsy blood sample?

8

9

10

11

12

A. Oh, yes, it is 74/81, yes. It  
is a portion of that.

13

14

Q. I was just going to ask you,  
Doctor. I take it then you took a portion of the  
blood specimen that had come in from autopsy and I  
take it had not been used up in the various assays  
that you had conducted on the 16th of March and the  
19th of March at your own hospital and sent that over  
to Mount Sinai Hospital for assay over there?

15

16

17

18

19

20

A. Yes.

21

Q. All right. Can you tell me,  
Doctor, why you did that?

22

23

A. Because we had an unexplained  
result and as confirmation of the result that we had  
obtained I wanted, if you like, a second opinion.

24

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E.14

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Prior to this occasion there had been a number of samples, I am thinking specifically of a different assay from this, but there are a number of samples for a thyroid stimulating hormone where we obtained a high result. The high result didn't tie in with the patient's clinical condition. We had done two things: we had diluted those samples and got a result that didn't tie in with the neat result and when we had sent them to other hospitals, I think on that occasion Mount Sinai and also Toronto General, when we had sent them to those hospitals we had obtained a normal result which was much more in keeping with the clinical condition. It is a very unusual event but there were samples like this.

15

16

Q. Had you ever before had occasion, Doctor, to send a blood sample over to Mount Sinai for digoxin assay purposes?

17

A. Not to my recollection.

18

19

Q. All right. And looking at this requisition form, Doctor.

20

A. Yes.

21

22

23

24

25

Q. There is a note that is partially - it is very difficult to read but I have checked the original on the top and it says "Discussed with Dr. Pollard".





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TORONTO, ONTARIO

Ellis, dr.ex.  
(Cronk)

906

E.15

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A. Yes.

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Q. Can you tell me who Dr. Pollard

is?

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A. Dr. Pollard was the  
head of Biochemistry at Mt. Sinai.

Q. Right. And did you  
personally discuss the matter with him?

A. This is my writing, yes.

Q. On the requisition form?

A. Yes.

Q. And what was the purpose  
of your discussion with Dr. Pollard?

A. I explained to him that  
I was sending a digoxin sample over there, that we  
had obtained a high result on a child that had  
died, and would he be prepared to analyze this for us.

It was not our usual practice  
to send digoxins over there so I suspect that he  
would well have known that we did digoxins.

Q. I take it then that the  
purpose of the discussion with Dr. Pollard was to  
enquire as to whether or not he would be willing  
for his lab to do an assay --

A. Yes.

Q. -- on this sample for you?

A. Right.

Q. And there is also an  
indication on the requisition form that you sent over





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accompanying the sample that the approximate value  
was 25 nanograms per millilitre?

A. Yes.

Q. Is that your writing as  
well, doctor?

A. That is right.

Q. Doctor, at the time that  
this sample was sent over was this a decision that  
you had made to send part of the sample over for  
assay at Mt. Sinai?

A. Yes.

Q. Or did someone suggest to  
you that that would be appropriate?

A. No, I don't think so. I  
think I made the suggestion on the basis of the  
thyroid stimulating hormone problems that we had had.

Q. You had some experience  
in the past in asking Mr. Sinai to do cross-check  
assays for you?

A. Yes, and we had done some  
for them as well.

Q. Right. And, doctor, were  
you at the time aware of the kind of methodology used  
by Mt. Sinai to conduct digoxin assays?

A. Yes, I think I was, yes.





F3

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Q. Was that -- sorry.

3

A. Specifically because it

4

was my understanding at that time that we were using

5

essentially the same assay that Toronto General

6

Hospital was using in respect of the antibody supplier.

7

Q. Did Mt. Sinai as well

8

use a radioimmunoassay --

9

A. No.

10

Q. -- type of assay as you  
did?

11

A. No. Sorry, they used

12

a radioimmunoassay but not the same antibody.

13

Q. Not the same antibody in

the sense it came from a different supplier?

14

A. It came from a different

15

supplier.

16

Q. In other words --

17

A. There was a different

18

separation technique, too.

19

Q. All right. Your antibody

20

you have told us previously was supplied to you at

21

this point in time from Antibodies Inc. Do I have  
that correct?

22

A. Yes.

23

Q. So the supplier of Mt.

24

Sinai's antibodies so far as you understood it was a

25





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2

different supplier?

3

A. Yes.

4

Q. So that the kit was

different?

5

A. Yes. The assay kit was

6

different.

7

Q. All right. And you have

8

previously described in evidence the form of

9

separation technique as it was then used at your

10

Hospital, and that as I recall it involves the

11

use of charcoal --

12

A. Yes.

13

Q. -- to assist in the binding

14

of digoxin to the charcoal for the purpose of the

15

A. Yes.

16

Q. All right. And it was

17

your understanding I gather at the time that Mt.

18

Sinai did not use that charcoal step in the procedure

19

but used a different kind of separation technique?

20

A. Yes, but the major

21

difference between our assay and theirs was the

22

choice of antibody they used; a different supplier.

23

A. All right. Do you know

24

what supplier they were then using for their

25







F5

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antibodies?

3

A. I think I was aware that

4

it was a different supplier at the time. I think

5

in discussions later or possibly then, I think they

6

used Joldin Diagnostics which was a local supplier.

7

Q. In terms of the separation

8

technique that they were then using were you

9

sufficiently familiar with their assay to have any

10

information as to what the difference was?

11

A. I think they were using

a second antibody separation procedure.

12

Q. Were there any other

13

differences between the two forms of assay, the

14

one at your Hospital and the one at Mt. Sinai, of

15

which you were then aware?

16

A. Those were the major

17

differences, and there would probably be detailed

18

methodological differences that are less significant

than those two.

19

Q. All right.

20

Doctor, I take it that in due

21

course you did receive a report back from Mt.

Sinai --

22

A. I did.

23

Q. -- as to the result of the

24

25





F6

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assay that had been conducted?

3

A. Yes.

4

Q. Right. Would you turn

5

to the next tab then in this book, Tab 35, if you

6

would. That appears to be a special requisition  
and report form from Mt. Sinai Hospital.

7

Is this the report of the

8

results of their assay which you ultimately received?

9

A. Yes.

10

Q. And we see, doctor, that

11

the report indicates digoxin 112 - is that nanograms  
or micrograms per litre?

12

A. This is micrograms per

13

litre which is the same as nanograms per mL.

14

THE COMMISSIONER: Well, it is

15

except that it is 'n'. It isn't 'm', is it?

16

THE WITNESS: It is 'mu'. It is

17

the Greek 'mu'.

18

THE COMMISSIONER: Oh, I see.

19

THE WITNESS: Micro.

20

MS. CRONK: Q. In mathematical terms,  
doctor, the two are the same?

21

THE COMMISSIONER: Oh, it is 'u'.

22

It is 'ug'. Is that '112 ug'?

23

THE WITNESS: It is a Greek letter,

24

25





F7

1

2

'mu'.

3

THE COMMISSIONER: Yes.

4

5

MS. CRONK: Q. And, doctor, in your mind that was the same as receiving a result of 112 nanograms per millilitre?

6

A. Yes.

7

8

Q. Do you recall when this result was received by you?

9

10

11

12

A. It was received by us fairly late, if you like. In other words, it didn't come out within a few days. I think it was about ten days; possibly two weeks.

13

Q. After you had sent it over?

14

A. Yes.

15

16

17

18

19

Q. We see a date on the requisition form, doctor, of March 19, 1981. That appears under the Specimen category. I take it that date refers to the date on which the sample was sent over for assay, then, as opposed to the date upon which the results were available?

20

A. Yes.

21

22

23

24

25

Q. And, doctor, with respect, there is an indication on the requisition form that it was rechecked. Did you have any understanding as to what that meant?







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A. No, not at that particular  
time.

3

4

Q. You think that you received  
the results approximately ten days to two weeks  
later?

5

6

A. Yes.

7

8

Q. Doctor, I take it then  
by the time you received the results both Allana  
Miller and Justin Cook had died?

9

10

A. That is right.

11

Q. At the Hospital?

12

A. Yes.

13

Q. Do you recall, doctor,  
whether or not charges had been laid against Susan  
Nelles on March 25th before you received back this  
result?

14

15

16

A. I don't specifically  
remember that, no.

17

18

Q. There is also an indication  
on the requisition form, doctor, that the report is  
to be sent to The Hospital for Sick Children, and  
immediately above that, Dr. Hill's name appears.

19

20

21

A. Yes.

22

23

Q. Do you recall whether you  
personally received these results or whether it was

24

25





F9

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Dr. Hill?

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A. I received them I think at this time in that even though they are addressed to Dr. Hill if there are a series of requisitions that relate to my lab they usually go directly to me and if you notice it was stamped with his stamp here. That is the stamp that actually my lab has and it clears this requisition for any kind of payment at a later date.

Q. What stamp are you referring to?

A. The one on the previous requisition without the result.

Q. I see.

A. So that was why it was addressed to him rather than me.

Q. Doctor, at the time you sent this blood specimen over to Mt. Sinai, aside from the differences between the two forms of assay technique that you have described, did you have any concerns about the methodology that was in use by Mt. Sinai for their digoxin assay?

A. Do you mean when I actually sent it over?

Q. Yes.





F10

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A. Or when I got the result  
back?

3

4

Q. All right, when you got  
the result back. Did you have any concerns about the  
methodology that had been employed?

5

6

A. Well, basically both of  
us were doing various dilutions. What I was  
expecting back was either a normal result, a low  
result if you like, or confirmation of a high result.  
I wasn't really expecting a much higher result back.

7

8

9

10

11

Q. I take it then, doctor,  
at the very minimum the result that you did get in  
fact confirmed a very high level in that blood  
specimen?

12

13

14

A. Very much so.

15

Q. Indeed as you point out  
the level was very much higher than the one that  
your lab had in fact recorded?

16

17

A. That is right, yes.

18

19

Q. When you received this  
report back, doctor, did you bring it to the  
attention of Dr. Hill or others in your Department?

20

21

A. I think on that occasion  
I had discussed it with Dr. Hill.

22

23

Q. When the results came back?

24

25





Ellis  
dr.ex. (Cronk)

1  
F11 2 A. Yes, but also I think  
3 when the result had come back various samples had  
4 already been picked up by the police, you know, on  
5 Monday and Tuesday following the deaths of Allana  
6 Miller and Justin Cook, and I believe that this  
7 sample had also gone to the Forensic Sciences  
8 Laboratory.  
9 Q. By "this sample" are you  
10 referring to the remainder of the blood specimen --  
11 A. Yes.  
12 Q. -- that was taken at  
13 autopsy?  
14 A. Yes.  
15 Q. Not the one that came  
16 back from Mt. Sinai?  
17 A. Yes, that is right.  
18 Q. You are referring to the  
19 balance of the autopsy --  
20 A. Balance of the autopsy  
21 blood sample, yes.  
22 Q. What significance did you,  
23 doctor, attribute to this level once you were  
24 informed of it?  
25 A. The significance was -  
that I attributed to this - that this confirmed the







F12

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high results that we had obtained.

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I couldn't simply explain the large discrepancy between these two results. I thought it was possibly due to methodological differences, antibody specificity and this kind of thing. I just had difficulty in explaining it.

Q. Did you discuss it with Dr. Pollard after receiving the result?

A. I think I did, and possibly also had discussions with him later on.

I don't remember whether the discussion took place then or as I say some time very much later on, but basically he had checked it. You know, it says "rechecked" and this analysis had been done several times by then, and they were satisfied with their results as we were satisfied with ours.

Q. And the basis of the discussions that you had with Dr. Pollard, doctor, were you satisfied that this level was valid in accordance with the technique that Mt. Sinai had used?

A. Yes, in respect of their technique.

Q. Right. Doctor, other





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A. Sorry. Their technique like our technique is really designed to analyze blood serum within a particular range, and it was just my opinion, that we had had a lot of experience in dilutions. In other words, I knew that our assays worked reasonably well on dilutions because we had done all these various things in dilution in the past.

I didn't have any direct experience with their assay, and so if you like I believe our result rather than their result.

Q. I take it though, doctor, it was your understanding that various dilutions had been performed at Mt. Sinai on this sample?

A. I later learned that, yes.

Q. And that it was as a result of the various dilutions that this level was in fact recorded?

A. Yes.

Q. And as a result of the discussions which you subsequently had with Dr. Pollard I take it you discussed with him the methodology --

A. Yes.





F14

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Q. -- that had been used --

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A. Yes.

4

Q. -- to obtain this result?

5

A. Yes.

6

Q. Did you come away from

7

that discussion with any concern as to the type of  
methodology that had been used?

8

A. No. No.

9

Q. Right.

10

A. Okay. As I said, I

11

believed our result rather than theirs in respect

12

to this sample, but I guess, you know, home cooking  
is best.

13

Q. I am not going to debate

14

that point with you, doctor, but in terms of your

15

experience as a biochemist with digoxin assays, was

16

there anything that you learned as a result of your

17

discussion with the biochemists at Mt. Sinai Hospital

18

that suggested to you that an improper or unreliable

19

step had been taken in the methodology that led to  
this result?

20

A. I see. If you ask me

21

about the robustness of a charcoal separation

22

technique compared with the robustness of a second

23

antibody separation I would tend to go for the

24

25





Ellis  
dr.ex. (Cronk)

1  
F15 2 charcoal separation.  
3 Q. Right.  
4 A. Which is our technique in  
5 respect of small molecules.  
6 Q. I take it, doctor, and I  
7 think I am relatively clear on this, that you prefer  
8 your own assay and your own technique for a number  
9 of reasons?  
10 A. Yes.  
11 Q. In respect of the  
12 technique, however, that was used at Mt. Sinai,  
13 did you come away from your discussions concerning  
14 this level with any understanding that that method-  
15 ology was deficient so that an erroneous result  
16 would be produced?  
17 A. No.  
18 Q. Doctor, other than sending  
19 part of the autopsy blood sample obtained from Kevin  
20 Pacsai over to Mt. Sinai for testing did you as well  
21 seek to examine internal to your own Hospital the  
22 medical record of Kevin Pacsai?  
23 A. Kevin Pacsai, no. No,  
24 I didn't.  
25 Q. Did you seek to examine  
the medical record of Janice Estrella?







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F16 2

A. Yes.

3

Q. Once the Pacsai results  
had been known to you?

4

5

A. Yes. In respect of,

6

you know, the last little issue, perhaps I could  
explain that you see a 26 and a 112, but under the  
circumstances that this result was received back,

7

8

samples had already gone to Forensic Sciences, if

9

my recollection is correct, so it doesn't matter

10

what we get or what somebody else gets or what

11

hospital somewhere else gets, you know. A definitive

12

assay was about to be performed so neither of those

13

as far as I was concerned had any major significance

and the 112 confirmed the high result.

14

Q. I understand, doctor. It

15

was your belief then at the time that the definitive

16

result of these digoxin levels would be forthcoming

17

in due course --

18

A. Yes.

19

Q. -- from the Centre for

Forensic Sciences?

20

A. Yes.

21

Q. Doctor, with respect to

22

the medical chart of Janice Estrella I take it that

23

when the Kevin Pacsai post mortem result was available

24

25





Ellis  
dr.ex. (Cronk)

F17

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and you then again recalled the Estrella levels,  
you sought at that point to see her medical chart?

A. Yes.

Q. And why did you do it at  
that stage, doctor?

A. Basically just to see  
when the last dose had been given.

Q. Did you in fact then  
receive the medical chart and undertake a review of  
it?

A. I received the medical  
chart but I did not undertake a review of it.

Q. Did you have any opportunity  
to examine the chart to determine when the last dose  
of digoxin had been given?

A. I didn't, no.

Q. All right. Up until the  
time you had requested or sought the medical record  
for the purposes of that review, had anyone informed  
you that Janice Estrella had not received digoxin  
four days prior to her death?

A. No.

Q. So you were still at that  
time then under the impression that she may or may  
not have received digoxin in the days immediately





F18

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preceding her death?

3

A. Yes.

4

Q. Doctor, do you recall

5

when you received the medical chart of Janice  
Estrella?

6

A. Yes.

7

Q. When was that?

8

A. On the Friday of that

9

week. The week following the death of -- sorry,  
the week following the death of Kevin Pacsai.

10

11

Q. That would be Friday,

12

March 20th?

13

A. Yes. Just before the

14

other two deaths.

15

Q. All right.

16

A. Yes, in the afternoon I

think.

17

Q. Do you recall on that day,

18

doctor, discussing the cases of Janice Estrella and  
Kevin Pacsai with Dr. Mancer?

19

A. Yes.

20

Q. How did that come about,

21

doctor?

22

A. He came to my office.

23

Q. That is on the 20th of

24

25





F19

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March?

3

A. That was on the Friday,

4

yes.

5

Q. And when Dr. Mancer came

6

to your office did he know at that stage what the  
results on the Pacsai post mortem sample had been or  
did you then inform him of those results?

7

8

A. No, he knew of them

9

already. In fact there had been discussions between  
him and Dr. Cutz.

10

11

Q. Did you discuss with

12

him both the Estrella levels and the Pacsai levels  
at that time?

13

A. Yes.

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Q. What were the nature of the discussions that you had with Dr. Mancer?

A. Basically the discussions that I had with Dr. Mancer, to the best of my recollection related to possible medication error; and also that was the substance of the discussions between myself and Dr. Tepperman who came and picked the chart up from me later on that afternoon.

Q. Doctor, why did you understand that Dr. Mancer had come to see you?

A. He came looking for the chart.

Q. That is looking for the Estrella chart?

A. Yes.

Q. And when he arrived at your laboratory you then had the chart in your possession?

A. Yes, that had recently come into my possession. I think I had asked for it on the Tuesday or Wednesday but it had not been available. My secretary brought it along on the Friday, I think in the afternoon.

Q. When Dr. Mancer arrived at your laboratory and I take it asked for Janice Estrella's medical chart?

A. Yes.





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Q. You had not at that stage had a chance personally to review the record you have told us?

A. No.

Q. Did you then, accompanied by Dr. Mancer, review the doses of digoxin that had been prescribed and that had been administered to the child?

A. No, I didn't.

Q. Did Dr. Mancer do so in your presence?

A. I don't think so. I think he, if my recollection is correct I think he telephoned Dr. Tepperman, I think he had been trying to get Dr. Tepperman and he phoned him I think from my office, I am not sure.

Q. Do you have any understanding as to why Dr. Mancer was attempting to reach Dr. Tepperman?

A. Because Janice Estrella was a case that had not previously been notified to the coroner, because at the autopsy I believe they found sufficient abnormalities that they felt at that time explained the death, without knowing details.

Q. Did you understand then that





1

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it was Dr. Mancer's purpose to report Janice Estrella's  
death to the coroner at that stage?

3

3

4

A. Yes.

5

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Q. Did you have any understanding  
as to why he was doing it at that stage?

7

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A. Well in the light of  
conversations between himself and Dr. Cutz in  
relation to the recent events, in relation to Pacsai.  
Because he had now, he was now expressing concern  
about this result of 72 on Estrella.

11

12

13

Q. Doctor, you have said that  
one of the matters discussed between Dr. Mancer and  
yourself was this question of a medication error?

14

15

A. Yes.

16

17

Q. Do I have that correctly?

18

19

A. Yes.

20

21

Q. When you use the words  
"medication error" in that context, are you referring  
to an error in the prescription of the drug?

22

23

24

25

A. Yes.  
Q. Or the actual administration  
of the drug?

A. Either the prescription or  
the interpretation of the prescription resulting in  
an inadvertent inappropriate dose being given.





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Q. Am I correct, Doctor, that

3

Dr. Tepperman did contact Dr. Mancer while he was  
still in your laboratory, or do you recall?

4

5

A. That is my recollection, however

6

good it is and whether this was the first occasion,  
I don't know, but I just got the impression that he  
was contacting Dr. Tepperman, right, yes.

7

8

9

Q. Did you, apart from discussing

10

the question of the potential medication error with  
Dr. Mancer, did you discuss with him at that time  
any other possible explanation for the levels in  
Janice Estrella and Pacsai?

11

12

A. Such as foul play you mean?

13

14

Q. Any other possible explanation

15

at all?

16

A. No.

17

Q. The only explanation, or

18

possible explanation that you recall discussing was  
the question of medication?

19

A. Yes. It was an unexplained

20

death and the discussion that I had throughout the  
whole of this week, including with Dr. Tepperman,

21

related specifically to whether a medication error

22

had taken place in view of the two high autopsy

23

samples, and, you know, the circumstances of the

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death of Kevin Pacsai.

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Q. Did you discuss with Dr.

4

Mancer when he came to see you the method by which

5

the assays had been conducted on the Estrella samples,

6

did you review with him what had been done?

7

A. I don't know whether this

8

took place at this particular meeting, I think, as I

9

say, I think I had bumped into a pathologist early

10

in the week and we had discussions.

11

Q. As a result of your discussions

with Dr. Mancer on that day ---

12

A. I am sorry. I think he

13

was aware at that time that we had - the result of

14

Estrella was not due to a clerical error of some

15

sort and that 72 was the result we believed to be

16

correct.

Q. Dr. Mancer was aware of that?

17

A. Yes.

18

Q. That was your view on March

19

the 20th?

A. By the Friday, yes.

20

Q. And with respect to the

21

Pacsai level did you have any discussion with him

22

as to how that result had been obtained, what the

23

method was that had been used?

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A. I don't think so, no.

3

Q. Was there any discussion between

4

you as to whether or not that level was in your view

5

valid at that stage?

6

A. No, I don't think so, I didn't  
have any doubt.

7

8

Q. As I understand it, Doctor,  
you do not recall - I am sorry, as best as you can  
recall it only the Estrella medical chart was there  
and was being requested by Dr. Mancer?

10

11

A. Yes.

12

Q. And not the medical record of  
Kevin Pacsai?

13

14

A. Oh no that definitely wasn't  
there, no, because, you know, there were activities  
in the Hospital by the physicians and pathologists  
in relation to that, so I had no reason to look for  
that medical chart.

15

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Q. Would I be correct, Doctor,  
in suggesting that by the time Dr. Mancer left your  
laboratory that Friday afternoon the death of  
Janice Estrella had been reported to Dr. Tepperman,  
by him?

19

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22

A. Yes, I think that is correct.

23

Q. Did you, I am sorry?

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A. Yes, okay, I am sorry.

3

Q. Did you that Friday after

4

Dr. Mancer left your laboratory have any further

5

involvement with either Dr. Tepperman or the medical

6

record of Janice Estrella that day?

7

A. Did Dr. --?

8

Q. After Dr. Mancer left your

9

laboratory?

10

A. Yes.

11

Q. On the Friday afternoon.

12

A. Yes.

13

Q. Did you have any further

14

involvement with Dr. Tepperman, or with the medical

15

chart of Janice Estrella that day?

16

A. Yes. I think on that occasion

17

Doctor - in the light of the conversation between Dr.

18

Tepperman and Dr. Mancer the question at least at

19

that particular time related to how these charts

20

should come into Dr. Tepperman's hands. Okay. Now

21

what I said I think was that this was - no, I think

22

there had been preliminary communication between them

23

all, I am not sure.

24

Q. Did you meet with Dr.

25

Tepperman later that day?

26

A. I did.

27

28





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Q. For what purpose?

3

A. To hand over the charts to him.

4

Q. When you say charts, what charts are you referring to?

5

6

A. The charts of Janice Estrella.

7

Dr. Mancer was leaving I think a little earlier than I was, and Dr. Tepperman couldn't come at that moment and he was only available later, and so the charts, rather than Dr. Mancer taking the charts away with him which is what he intended to do, he said, you know, give these charts to Dr. Tepperman he will be in the Hospital at a particular time.

12

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Q. Doctor, do you recall during the course of your discussion either with Dr. Mancer or with Dr. Tepperman that day, having any discussion as to the possibility that digoxin might be released from tissue after death into the blood?

17

A. No.

18

Q. Of either Kevin Pacsai or Janice Estrella?

19

20

A. No.

21

22

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Q. In fairness to you, Doctor, so that you are aware of it, Dr. Mancer has testified that as he recalls his discussion with you on Friday March 20th, that you had a discussion concerning the







(Cronk)

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release of digoxin by tissues after death. Do you recall that at all?

3

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A. Not that specific issue, no.

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Q. He has also testified that you had a discussion concerning the manner in which the Estrella sample, postmortem sample at autopsy resulting in a level of 72 had been diluted, and that you had a similar discussion with respect to the Pacsai sample. I take it you don't recall specifically a discussion on those two either?

11

12

A. Oh, you mean in relation to the dilution of those samples?

13

14

Q. The process of diluting the sample for assay?

15

16

A. The process of diluting the samples within the laboratory?

17

18

19

Q. Yes.

A. Well he may well have asked for details as to how we were sure that was the result, and I don't recall that specifically, no.

20

21

Q. Doctor, as I understand it you were not on duty on Saturday March 21st, or on Sunday March 22nd at the Hospital?

22

23

24

25

A. That is correct.

Q. You were not on call for the





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purposes of digoxin assays over that weekend?

3

A. Yes, that is correct.

4

5

MS. CRONK: Mr. Commissioner, I am  
about to move briefly to the case of Allana Miller.  
Shall we take our break now?

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THE COMMISSIONER: Yes we will take  
20 minutes.

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---Short recess.

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1  
2 ---Upon resuming.

3 THE COMMISSIONER: Yes, Ms. Cronk.

4 MS. CRONK: Q. Dr. Ellis, before we  
5 move on to the case of Allana Miller there were two  
6 further points concerning the blood samples sent over  
7 to Mount Sinai about which I was curious.

8 The first is, as I understood your  
9 evidence before we took our break you said that when  
10 you sent part of that blood sample over to Mount  
11 Sinai you expected the result, the level when it  
12 came back to be low or normal. Did I understand you  
correctly?

13 A. Oh, no, I didn't - okay. If  
14 our original result had been due to very spurious  
15 idiosyncratic materials within that individual sample,  
16 then we could well have obtained a low result by a  
17 different assay if in fact this kind of thing had  
occurred.

18 Q. Was there in your mind when you  
19 sent that sample over to Mount Sinai any suggestion  
20 that the sample that you had assayed at your Hospital  
21 had contained spurious material that resulted in  
22 an erroneous level of that kind?

23 A. No, no.

24 Q. No, all right. And I take it  
25

H/BB/ak





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then that when you say when the level came back from Mount Sinai that you thought it had confirmed the level that you had obtained you are talking only about the fact that the level was a high one when it came back?

A. Yes.

Q. You indicated as well, Doctor, that you preferred for the reasons you described, a separation technique that you use in your own laboratory for digoxin assays, that is, the use of charcoal for the purposes you previously outlined?

A. Yes.

Q. I thought you had said earlier this morning that you preferred that for use on small molecules as opposed to the double antibody separation technique that is used at Mount Sinai. Did I understand your evidence correctly?

A. Yes.

Q. All right. I'm a little puzzled by that, Doctor, because it has been my understanding on the basis of the evidence to date that digoxin itself is a large molecule not a small molecule. Am I incorrect in that?

A. Everything is relative. By small molecules I meant a small molecule like a







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steroid or digoxin or a drug, a relatively small molecule, molecular weight 300 to 500. By large molecule in this context I meant a protein hormone that is of several tens of thousands of molecular weight.

Q. I take it then that you prefer the charcoal separation technique that you use because you have had experience with it in the past and are confident that it does what it is intended to do with respect to a molecule of the size of digoxin?

A. Yes, in our experience.

Q. And you have told me previously when you previously testified that you had no experience with a double antibody system or separation technique for the purposes of digoxin assays. Do I understand that correctly?

I had understood you to testify when you were last here, Doctor, that you have had no personal experience in using a double antibody system for digoxin assays.

A. Oh, no. I think there is a very slight misunderstanding here in that I think you were asking me specifically of the method, the second antibody solid phase method that is used at the Forensic Science laboratories.





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Q. Do I understand you then to now be saying that you have used a double antibody system as a part of a separation technique in your own laboratory for digoxin assays?

A. Yes.

Q. All right. And in using a double antibody as a separation technique in your own laboratory, do I take it then, on the basis of that experience, you prefer the charcoal separation method?

A. Not on the basis of that particular experience in relation to digoxin but in relation to other experience with second antibody separations.

Q. Well, I am talking specifically about the digoxin assays now that you have conducted. Have you used a double antibody separation technique for those in your laboratory for digoxin assays?

A. For experimental purposes and to check various assays on one or two occasions in the past several years, yes.

Q. All right. So, your experience is confined to those one or two experimental occasions in the last several years?

A. Very much, yes.





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Q. All right, thank you, Doctor.

Doctor, could we turn now to the case of Allana Miller. You have told us that you were not on duty or in the Hospital on Saturday, March 21st or on Sunday, March 22nd. As I understand it, you did have occasion to supervise another digoxin assay on March 20th, the Friday, before you left for the weekend on a blood sample drawn from Allana Miller, is that correct?

A. Yes.

Q. Would you turn if you would, do you have Exhibit 32B there, Doctor?

A. Yes.

Q. Could you turn to Tab 45 at page 27, please. Do you have that, Doctor?

A. Yes.

Q. On the entries made concerning the results of assays conducted for digoxin on the 20th of March, 1980, we see reference at Item No. 11 to Allana Miller and to Sample No. H18465 which I take to be a sample drawn on the 19th of March from a vein. Do I have that correct?

A. Yes.

Q. All right. And that level resulted, the result of that assay was 0.6 nanograms.





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A. That is correct.

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Q. And inasmuch as we know that the child died on March 21st in the early hours of the morning at approximately 3:27 a.m., I take it it is clear that that particular sample was an ante-mortem sample?

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A. Yes, it was.

9

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Q. All right. Do you have any recollection one way or the other, Doctor, as to whether or not that assay result was reported in the normal course orally to the ward on that day, that is, on March 20th?

13

14

A. Any specific recollection on my part?

15

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Q. Do you know whether or not it was in fact reported orally to the ward on March 20th?

17

18

A. I don't have specific knowledge of that but it should have been, yes.

19

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Q. All right. Could we turn now then to the digoxin assays that were conducted at the Hospital on tissue and fluid specimens, that is, on specimens other than blood or serum specimens. You have told us, Doctor, that you do not recall going to see Dr. Cutz, or speaking with him on







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March 18th and enquiring of him at that time whether or not a heart muscle specimen from the body of Kevin Pacsai was available for digoxin assay purposes. Do I have that correctly?

A. I don't recall that.

Q. All right. Doctor, as I understood your previous evidence, up until the time Kevin Pacsai died you had not, nor had anyone else to your knowledge in the Hospital conducted digoxin assay tests on tissue or body fluid samples. Do I have that correctly?

A. That is correct, yes.

Q. All right. Was that equally true, Doctor, of body fluid digoxin assays as well as tissue sample assays?

A. To my recollection, yes.

Q. All right. You have previously testified when you last appeared before the Commissioner that the RIA methodology which you use for digoxin assays was used on two occasions to test tissue samples for digoxin and you also indicated that the results you obtained on those two occasions were quite equivocal.

A. Yes.

Q. Do you recall that evidence?





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A. Yes, I do.

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Q. All right. Mr. Commissioner,  
that is found at Volume 6, page 917 of Dr. Ellis'  
previous testimony.

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As I understood it, you testified on  
that occasion as well that in your view, on the  
basis of those two experiments if you will, it was  
clear that in your view that a lot of work would  
need to be done to modify the RIA method that you  
had used in order to deal with tissue samples?

11

A. Yes.

12

Q. Do I have that correctly?

13

A. Yes.

14

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Q. All right. Would that apply  
as well, Doctor, in your view to running digoxin  
assays on body fluids?

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A. It could well do, yes. If the  
fluid resembled the material that we are used to,  
in other words, plasma in the sense that it was fluid  
as opposed to solid material, then there may be less  
modification required. But really some modification  
should be done. You can't just take 50 microlitres  
and put it into a tube and hope.

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Q. I take it then, Doctor, that  
in your view the modifications that would be necessary

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to the methodology would be greater in order to  
permit assays to be conducted on tissue samples per se?

A. That is correct.

Q. All right. But yet there would  
still be modifications that would be required to do  
assays on body fluids?

A. There could well be.

Q. All right. Well, Doctor, you  
have told us there were two occasions when you did  
undertake digoxin assays on tissue specimens. Was  
one of those occasions on March 20th, 1981 in respect  
of tissue samples from the body of Kevin Pacsai and  
Jordan Hines?

A. Am I allowed, can I refer to  
the page?

Q. Of course. To assist you, if  
you would refer to page 28, Tab 45.

A. Yes, okay.

Q. Do you have that?

A. Yes.

Q. We see there, Doctor, the carry-  
over of the entries of digoxin assays conducted on  
March 20th. The initial entries commence on the  
previous page but on page 28 at Items 17 and 18 we  
see reference to lung and heart from a patient





H10

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described as Hines.

3

A. Yes.

4

Q. Am I correct, Doctor, that

5

those entries refer to lung and heart tissue

6

specimens from the body of Jordan Hines?

7

A. I believe this is correct, yes.

8

Q. All right. Doctor, we see

9

under Items numbered 20 through 22 reference to  
heart, brain, lung and trachea specimens with

10

reference to the patient Pacsai. Am I correct

11

that those represent tissue specimens from the body

12

of Kevin Pacsai?

13

A. Yes. These were samples that,

14

as indicated below, these were tissues obtained from

15

the Virology Department in the Hospital.

16

Q. All right. I will come back to

17

that in a moment, Doctor. But I take it those three

18

do relate specifically to Kevin Pacsai?

19

A. Yes.

20

Q. Did you personally run digoxin

21

assays on those specimens on March 20th?

22

A. My recollection is that I

23

prepared these samples and handed them to a

24

technologist who was doing the usual assay run and

25

indicated to them what they should do with those







H11

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samples and they actually run them.

3

4

Q. Were the assays then run under  
your supervision that day?

5

A. Yes, they were.

6

7

Q. Can we deal first, Doctor,  
with the specimens from the body of Jordan Hines.  
Can you tell me where you obtained those specimens?

8

9

A. All these specimens were  
obtained from the Virology Department.

10

11

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Q. 'All right. And how did it  
come about, Doctor, that you obtained those specimens  
from the Virology Department?

13

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A. This is something about which  
I am not clear. I certainly obtained them myself.  
I can't remember the circumstances under which we  
were doing these tissue samples. We hadn't done any  
before. It was obviously as a further investigation  
to the possibility of digoxin, you know -- I think...

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EMT.jc

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Q. Do you recall, Doctor, one way or the other how that came about?

4

A. No. As I indicated previously somebody asked me if we would do tissues, we would attempt to do tissues --

6

7

Q. Do you recall?

8

A. -- during this week.

9

10

11

Q. I am sorry, do you recall specifically being asked whether or not you would do assays on tissue samples both from the body of Jordan Hines and Kevin Pacsai?

12

13

A. Yes. Why those were chosen I cannot specifically remember. I realize now that those were - some of these were index cases.

14

15

Q. I am sorry, were which cases?

16

A. Were cases of interest to you.

17

18

19

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If we were to do something unusual that we had never done before we would normally ask for what we might call control samples, and we would usually try to analyze those control samples along with the samples of major interest. Okay.

21

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Now my vague recollection is that these names were not selected at random by myself but somebody else asked me to go and do some tissue samples, particularly Pacsai, and also some others. The reason





I.2

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is not clear. Either as controls or they were of  
interest to them.

4

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Q. All right. Doctor, dealing with  
the specimens that you obtained on Jordan Hines and  
Kevin Pacsai, you have told us that you personally  
obtained those samples from Virology?

8

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A. Yes.

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Q. You also told us that based on  
your previous experience you had not done any assays  
on tissue specimens ever before?

18

19

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21

A. That is correct.

Q. So doing them in this instance  
on specimens of those two children was in fact  
unprecedented in your experience?

22

23

24

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A. Very much so.

Q. What did you understand the  
intended purpose to be of running digoxin assays on  
these tissue specimens?

A. I have a vague recollection that  
the possibility of other deaths, deaths of other  
children in addition to these two may have been  
mentioned at that time.

Q. Do you have any recollection at  
all as to which deaths might have been mentioned?

A. No.





I.3

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Q. With respect to Jordan Hines, Doctor, that child we have learned in evidence was not prescribed digoxin at The Hospital for Sick Children.

Had you prior to March 20th ever before performed a digoxin assay on any specimens from Jordan Hines, be it blood, tissue or body fluid?

A. I don't know.

Q. You don't know whether you did or didn't?

A. I don't know the answer to that question.

I have not looked back through our book, you know, for the last 200 - the last 200 names to see whether Jordan Hines comes up there. I don't remember doing.

Q. Perhaps you can help me with this. Prior to March 20th do you have recollection at all of having heard of the case of Jordan Hines before?

A. No.

Q. Can you tell me, Doctor, with respect to those particular specimens - and I will come to the results in a moment - what methodology was used by you to perform those assays?







I.4

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A. It was an extremely crude first approximation assay where we just took the material and we homogenized it in - we took some of that material and added it to our digoxin buffer and then we just put that into the assay system just to see what would happen.

Q. I take it then, Doctor, that you were still using the RIA methodology?

A. Yes.

Q. That you were used to?

A. Yes.

Q. All right. When you say you homogenized the samples, are we talking both about Jordan Hines and Kevin Pacsai here?

A. All of these samples between 17 and 23 were treated in the same way.

Q. All right. And we see at Item No. 19 and Item No. 23 the name of another patient and it appears that you had liver and lung specimens from that patient as well?

A. Yes.

Q. And they came as well from Virology?

A. All of these samples came from Virology.





I.5

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THE COMMISSIONER: You speak of  
homogenizing them. You mean all of these together?  
Is that what you mean?

5

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THE WITNESS: Oh, no, individually. A  
small quantity of the material was taken and was  
subjected to homogenization.

8

9

10

MS. CRONK: Q. Dealing with that,  
Doctor, obviously the assay with which you had some  
experience prior to this time had been used by you to  
run assays on blood specimens?

11

A. On serum specimens.

12

13

Q. All right. With respect to these  
specimens, however, they were tissues?

14

A. Yes.

15

16

Q. And I take it that required a  
step that you would not normally use, and that is the  
homogenization of those samples?

17

A. That is correct.

18

19

Q. All right. Then in each case  
you would do that separately for each specimen?

20

A. Yes.

21

22

Q. What do you mean by that phrase,  
Doctor? What did you do to the specimen?

23

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A. I took a small amount of that  
specimen and I placed it into a homogenizer, and a





I.6

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homogenizer is essentially a tube into which a piston fits, and the kind of piston fits into the tube in a very close tight fit, and the piston itself is driven by a motor and by turning the motor on for a small amount of time the piston rotates within the tube that is held, and there are tearing forces that occur between the tube and the piston, and these tearing forces will tear up amounts of tissue and homogenize the material.

Q Is the result of the process to liquefy the tissue specimen?

A To liquefy - to prepare a suspension from that.

Q All right. So that you have a form of liquid substance which can then be submitted to the rest of the assay process?

A It can be pipetted - yes, the suspension then can be pipetted.

Q That is a new word for me, Doctor. What do you mean by pipetted?

A The suspension can then be transferred by pipette to a second tube.

Q All right.

A A pipette is a measuring device.

Q Let's take it in two steps. The





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result or the material that comes out of the homogenizer at the end of the process I take it is now in something like a liquid form? You have called it a suspension.

A. Right.

Q. Is the purpose of the process to put it in a material fashion that can then be submitted for the rest of the assay?

A. Yes.

Q. And when you talk about pipetting it, that is merely putting it in the tubes that will then be used to run through the RIA methodology?

A. Yes.

Q. And other than the homogenizing - well, I should ask you: was that done at the outset as a necessary first step with respect to each of these specimens?

A. Yes.

Q. Other than the homogenizing feature which we know is an unusual one in terms of the normal process you follow, did you do anything else with respect to any of these specimens from either Hines or Pacsai that was different from what you would normally do in running a digoxin assay?

A. No.







I.8

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Q. All right. Then, Doctor, I take it with respect to the Hines samples we see on the right hand side of page 28 that the result was under .2 on the lung specimen?

A. Yes.

Q. Similarly the result was the same on the heart specimen from Hines?

A. Yes. Okay.

Q. Under .2.

A. Yes.

Q. And the same results were obtained on all of the specimens from Kevin Pacsai?

A. Correct.

Q. We see as well at Item No. 24, Doctor, mention of a control C. Does that control relate to a control tissue specimen that you used on these assays?

A. No.

Q. Right. What does it relate to?

A. That relates to the serum controls that we were running with that particular batch.

Q. I take it then, Doctor, having homogenized all of these tissue specimens you then placed them in the various tubes that were necessary





I.9

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to be run through on the assay, and you then did that in the various steps that you previously outlined to us in the normal course just as you would had the specimen originally been a serum sample?

6

A. That is correct.

7

8

9

Q. And the note at the bottom of page 28 indicates, of course, first that the tissues were obtained from Virology. Perhaps you can explain the balance of the note for us?

10

11

12

A. The material obtained from Virology contained approximately 1/10th weight over volume of tissue in culture medium.

13

Q. What does that mean?

14

15

16

A. This indicates the approximate strength of that material in that 1 over 10 parts would be 1 gram of the tissue in 10 mls of culture medium.

17

18

Q. What does the culture medium refer to, Doctor?

19

20

21

A. The culture medium is the medium used by Virology for the purpose of culturing viruses or for isolation of viruses.

22

23

24

25

Q. Is that a solution of some kind so that the tissues were received by you in a solution?

A. The tissues were received by me





I.10

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2

in a solution - in a fluid material, yes.

3

4

Q. Right. And was the fluid material used for the purposes of preservation of the specimens?

5

6

A. I don't know exactly what it was used for.

7

8

Q. Do you know what the fluid was, what the culture medium was that was used?

9

10

A. No, other than it was the medium used by Virology for this purpose.

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J/DM/ak

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Q. Had you ever before had occasion to run a digoxin assay on any specimen, be it blood, tissue, or body fluid, that had come from Virology suspended in culture medium?

A. Not at all.

Q. Doctor, then could you explain the balance of the note if you would after the indication that the specimens were homogenized?

A. That after the homogenization we took approximately 40 microlitres, I took approximately 40 microlitres of tissue and added to that 4 ml's of digoxin buffer, the usual assay buffer for digoxin, and then this was assayed in the usual way taking 50 microlitres of that buffer of the material as prepared.

Q. I take it then, Doctor, there is nothing in those steps that differs from the normal process of an assay run on a blood or serum sample?

A. After taking the 50 microlitres of this material?

Q. That's right. So the reference to the 40 microlitres of tissue and the 40 microlitres of digoxin buffer those will be steps that you would normally use in conducting an ordinary digoxin assay?







1

2

A. I am sorry?

3

4

Q. You would use 4 microlitres of digoxin buffer in a normal digoxin assay?

5

A. No, we would use 50 microlitres.

6

7

Q. All right. Why then in this case did you use only 4 microlitres of digoxin buffer?

8

A. 4 ml, 4 millilitres.

9

Q. Oh, I am sorry.

10

A. Okay. Basically this was a dilution of the tissue material with buffer prior to the analysis, prior to the regular analysis.

11

12

Q. And the results we had seen in each case were less than .2.

13

14

A. That was the answer obtained in doing the procedure this way.

15

16

Q. And Doctor, we see as well at Item No. 25, reference to Vial C, which resulted in a reading of 1.9 nanograms. Does that entry refer in any way to the assays that were done on these tissue specimens?

17

18

19

20

A. I don't know quite what that refers to.

21

22

Q. Doctor, as I understand it you then had a second occasion when you performed a second series of assays on these specimens, and

23

24

25





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2

that occurred on March 25, 1981, is that correct?

3

A. Yes.

4

Q. Doctor, the results of those

5

assays as I understand it are not in the regular

6

digoxin books?

7

A. That is correct.

8

Q. But rather are in a book which

9

is described as a Digoxin Kit Book. Can you tell me  
first what is a Digoxin Kit Book?

10

A. This was a book I used

11

initially for my own purposes when I was evaluating

12

or looking into kits for digoxin assay, other than

13

the method that we were dealing with, and also in

14

which I wrote various, the results of various

15

experiments in attempts made to modify the assay

16

that we would normally use for the purpose of actually  
speeding the assay up.

17

Q. Was this then a personal note-

18

book that you kept of various experiments, or

19

observations that you made from time to time over

20

the years?

21

A. Yes.

22

Q. Concerning the digoxin assay

23

that you ran?

24

A. Yes, some of them, yes.

25





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4

5

Q. Doctor, I am showing to you  
a bound copy of what I understand to be your Digoxin  
Kit Book, would you look at it and identify it as  
such if it is?

6

A. Yes, this is ---

7

8

Q. Is this your Digoxin Kit Book,  
Doctor?

9

A. That is correct.

10

11

Q. Is there more than one, Doctor,  
or is this the one that applies to the period of  
July 1983 through to March 1981?

12

13

14

15

16

A. I don't think there is more  
than one actual book. Page 1 starts, describes  
some experiments that were done in 1979, November.  
Then I think the next entry is probably around March  
or maybe a little bit earlier.

17

18

Q. Of 1981?

19

20

21

22

A. Oh, hold on; no, page 7 in fact  
is the 15th of November, 1979. Okay, yes, it is.

23

24

25

Q. Is this then the book that  
covers any personal observations that you made and  
wrote down during the time period of November 1979  
through to the end of March 1981?

A. Yes.

Q. Doctor, I would ask you to turn





1

2

to page 171.

3

THE COMMISSIONER: Shall we give it

4

a number now, 210.

5

MS. CRONK: Thank you, sir.

6

---EXHIBIT NO. 210: Digoxin Kit Book.

7

THE WITNESS: The page, please?

8

MS. CRONK: 171.

9

THE COMMISSIONER: I'm sorry, what

10

page?

11

MS. CRONK: It is pagenated in the

12

top right hand corner, Mr. Commissioner.

13

THE COMMISSIONER: Yes, I see, thank

14

you.

15

MS. CRONK: Q. Do you have that,

16

Doctor?

17

A. Yes.

18

Q. Doctor, at the top of that

19

page we see a paragraph entitled: "Tissue Samples".

20

It reads as followed:

21

"These had been obtained from Virology,

22

and were suspended in virology culture

23

medium. The approximate concentration

24

of volume was 1 g. tissue in about

25

10..."







1

2

Is that millilitres?

3

A. Yes.

4

Q. "...and were homogenized in a  
Potter Homogenizer."

5

6

And stopping there. Is a Potter Homogenizer, or is  
the word Potter simply an indication of the kind of  
homogenizing unit you used?

7

8

A. That is correct, yes.

9

10

Q. "These had originally been  
assayed by Mladen and myself on the  
20th of March at page 28 in the regular  
work book."

11

12

13

A. Yes.

14

Q. Were these notes made by you,  
Doctor?

15

16

A. Yes.

17

Q. And is Mladen one of the  
technicians in your laboratory?

18

19

A. Yes, Mr. Besednik.

20

21

Q. "They had then been frozen and  
had been thawed for 20 hours before  
analysis."

22

23

A. Yes.

24

Q. I take it then, Doctor, that  
the description of the tissue samples at the top of

25

26

27





1  
2 the page and the results - well, leaving aside the  
3 results at the bottom, the description of those  
4 tissues applies to the tissue specimens that you had  
5 just looked at and that are reported as having been  
6 assayed on the 20th of March, we are talking about  
7 the same tissue specimens, are we not?

8 A. Yes.

9 Q. And I take it then they were  
10 reassayed on March 25th, is that correct, Doctor?

11 A. Yes.

12 Q. And the results of the reassay-  
13 ing done on March the 25th is set out in the second  
14 half of the page on page 171.

15 A. Yes.

16 Q. And with respect to Pacsai,  
17 we see that a specimen - I'm sorry, a specimen  
18 "myocardium" was assayed and that resulted in a level  
19 of greater than 5?

20 A. Yes.

21 Q. Are those results measured as  
22 well in nanograms per millilitre?

23 A. Yes.

24 Q. And where we see a specimen  
25 of brain tissue was assayed and that resulted in a  
level of .7 nanograms.





1

2

A. Yes.

3

Q. And as well a specimen from the

4

lung and the trachea and that resulted in a level of

5

3.3 nanograms?

6

A. Yes.

7

Q. So in each respect then,

8

Doctor, on March 20th for the heart specimen on

9

Pacsai, you had a level of under .2 nanograms, but

10

in redoing it on March the 25th you had a level of

greater than 5 nanograms?

11

A. Yes.

12

Q. And with respect to the brain

13

specimen from Pacsai on March 20th, the results have

14

been under .2, but on March 25th the result was .7?

15

A. Yes.

16

Q. I'm sorry, Doctor, was that yes?

17

A. Yes.

18

Q. With respect to the lung and

19

the trachea specimen again on March 20th the result

20

was under .2, but on March 25th it was a level of

3.3 nanograms, do I have that correctly?

21

A. Yes.

22

Q. So in each case the results

23

which were available and which were recorded on

24

March 25th were higher in respect of each specimen

25





Ellis, dr.ex.  
(Cronk)

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2

than they had been previously on March the 20th?

3

4

A. Yes. Well, I'm sorry, some agree don't they? Isn't there one under 0.2 in respect of Whitehead?

5

6

7

Q. I am talking about Pacsai, Doctor.

8

9

A. Oh, I am sorry.

10

Q. The three Pacsai specimens.

11

A. I am sorry.

12

13

Q. Then if we come to Jordan Hines

14

15

we see that on March 25th you again assayed the heart specimen and this time you obtained a result of 4.4?

16

A. Yes.

17

18

Q. Whereas the result on March 20th had been under .2 nanograms, is that correct?

19

A. Right.

20

Q. Is that correct, Doctor?

21

A. Okay.

22

Q. So that the result again on March 25th was higher?

23

A. Yes.

24

25

Q. And similarly with respect to the lung specimen on March 20th the result was under 2, but on March 25th it was 3.5 nanograms, again







1  
2 higher; do I have that correctly, Doctor?

3 A. Yes.

4 Q. Doctor, we see as well on  
5 March 25th Entry No. 4, and that bears an Autopsy  
6 No. A88/81. Can you help me as to whose autopsy  
7 number that is? Perhaps I can help you, Doctor.

8 Mr. Registrar, could you show the  
9 Doctor please Exhibit 116 which is the medical  
10 record of Justin Cook. It is my understanding,  
11 Doctor, that is the autopsy number for Justin Cook.

12 A. Okay.

13 THE COMMISSIONER: I think you will  
14 find it also on page 31 of Exhibit 32B.

15 MS. CRONK: Thank you, Mr. Commissioner.

16 THE COMMISSIONER: That is easier.

17 MS. CRONK: Q. Doctor, perhaps you  
18 could look at page 31 then of Exhibit 32B, Tab 45  
19 that we had a moment ago.

20 A. I am sorry, page what?

21 Q. Exhibit 32B is the volume  
22 that I believe is beside you, Tab 45.

23 A. Page 31?

24 Q. Page 31, that is right, do you  
25 have that?

A. Yes.





1

2

3

Q. And if you look under Sunday  
the 22nd of March, Item No. 3, we see Justin Cook.

4

A. Yes.

5

6

Q. And beside that an autopsy  
number, 88/81.

7

A. Yes.

8

Q. Do you see that?

9

A. Yes.

10

11

12

Q. I take it then, Doctor, that  
on the 25th of March you had as well a specimen from  
the body of Justin Cook that you were assaying on  
that date, do I have that correctly?

13

A. Yes, that's right.

14

15

16

17

Q. And if we take a look at the  
specimen number which appears in your Digoxin Kit  
Book, it is Specimen No. D579/80 and that accords  
with the specimen number recorded in the medical  
record of Justin Cook as being a heart muscle specimen?

18

A. Yes.

19

20

21

Q. Do you recall, Doctor, on  
March 25th running a digoxin assay on the heart  
muscle specimen of Justin Cook?

22

23

A. I don't recall right now doing  
that, but I believe it to have been done.

24

25

Q. And I take it then, Doctor, that





1  
2 the result of the assay on March 25th on that  
3 specimen yielded a greater than 5 nanogram reading?

4 A. Yes.

5 Q. Off the top of the scale?

6 A. Yes.

7 Q. Doctor, can we deal for a  
8 moment again simply with Hines and with Pacsai. On  
9 March 20th you had results on all specimens that  
10 were assayed under .2 nanograms per millilitre. In  
11 your view, based on the way in which you had conducted  
those assays, were those assay results reliable?

12 A. No.

13 Q. And why is that, Doctor?

14 A. Well because if they were  
15 reliable when you repeat them you should get the  
16 same answer.

17 Q. Are you saying then, Doctor,  
18 it was not until you had reassayed the specimens that  
you determined that they were unreliable?

19 A. It seemed a little bit odd that  
20 they were all so incredibly low. Even when we knew  
21 that Pacsai serum had given high results.

22 Q. Well you knew on March the 20th  
23 the result of both the antemortem and postmortem blood  
24 serum specimens on Kevin Pacsai. Were you aware on  
25





1  
2 March 20th that Jordan Hines had not received digoxin  
3 in the Hospital?

4 A. No, I didn't, I don't think  
5 I knew anything about Jordan Hines.

6 Q. Then, Doctor, when you came  
7 to reassay the specimens on the 25th of March, were  
8 those results which we have seen are different and  
9 higher, in your view reliable?

10 A. No.

11 Q. And again, Doctor, I ask you  
12 why not?

13 A. Because basically I did not  
14 keep adequate documentation that this particular  
15 experiment that took place on the 25th of March.  
16 I have a recollection that we did the experiment  
17 slightly differently on the second occasion, and this  
18 was the reason why we got the quite discrepant  
19 results. But the exact difference between - well,  
20 how we did it is set out on page 28 of the previous  
21 book, right. But exactly how we did this indicated  
22 in my digoxin book on page 171 isn't clear to me and  
23 I don't think has been clear to me.

24 Q. I take it then, Doctor, you are  
25 clear in your own mind as to the methodology you used  
on March the 20th?







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A. Yes.

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Q. Because that is set out in the  
digoxin book at page 28?

5

A. Right.

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Q. Then we come to March 25th and  
the only information that is apparent from page 171  
is that we are talking first about the same specimens  
with respect to Pacsai and Hines?

9

A. That is correct.

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Q. And those are the ones that had  
been assayed on the 20th. You then have the indication  
that they had been frozen and had been thawed for  
20 hours before the analysis?

14

A. Yes.

15

16

Q. Can you tell me why the speci-  
mens were frozen?

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A. The specimens would have been  
frozen for stability reasons. The most stable state  
of the majority of chemical constituents in blood,  
or in body fluids, is the frozen state. Okay. So it  
would normally be our practice if we wished to retain  
material that we had prepared to freeze that material,  
so that was why the material was frozen.

23

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25

Q. Well we know, Doctor, that  
on March 20th when you received the specimens from





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Virology that you homogenized them.

3

A. Yes.

4

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Q. Were the specimens on which  
you conducted the assays on March the 25th the  
homogenized samples?

6

7

A. I think they were the homogenized  
samples, yes.

8

9

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Q. Because you told us that the  
purpose of freezing tissue specimen is that they  
will be more stable; do I have that correctly,  
Doctor?

11

12

A. Freezing biological materials  
in general they would be more stable. In fact page  
171 said:

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"These had originally been assayed by  
Mladen..."

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They didn't say whether they were the tissues or  
the homogenized specimen.

18

19

Q. Do you now recall which they  
were?

20

A. No, I don't.

21

22

Q. So it is possible that  
remnants of the tissue specimens per se had been  
frozen; and it is also possible that the homogenized  
samples, the balance that was not used up in the

23

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assays had been frozen?

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A. It is possible, yes.

4

Q. And again, Doctor, they had

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been thawed for 20 hours, is there any significance

6

to the time frame during which they had been thawed?

7

A. If we had frozen something and

8

we wished to assay it, we would remove it from the

9

frozen state and allow it to thaw out in preparation

10

for analysis, that would normally be done within an

11

hour or so prior to doing that analysis. In fact

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I have just noted here it was 20 hours, suggests to

13

me, but I do not know, it suggests to me that we

14

were going to try and analyze these the day before

15

and didn't have sufficient time to do it, and then

16

we got around to it about a day later which is about

17

20 hours. I just happened to make a note that these

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had been thawed for that length of time, just in

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case any results had been obtained that might be

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explained on the basis of the difference in time.

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Q. I take it, Doctor, then that if whatever it was that was frozen, be it the remnants of the tissue specimens themselves or be it the remnants of the homogenized materials that would have been frozen on March 20th after the assays on that day had been completed.

A. I think that is a reasonable assumption, yes.

Q. And you have told us, Doctor, that you do not specifically recall what methodology was used apart from the freezing and the thawing factors on March 25th?

A. That is correct.

Q. Is that correct?

A. Yes.

Q. Is it on the basis of the fact that you cannot recall what specifically was done on March 25th that you have indicated that in your view the results were unreliable?

A. Well, yes, partly because I cannot recall exactly what happened on that occasion and partly because there is such a large discrepancy between the first and second analysis. I mean, for the fact that there is under .2 on the first occasion and greater than 5 on the next, I can't explain it.







K.2

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Obviously what one would have done under normal circumstances would have been to continue for possibly a great length of time defining techniques and refining techniques and actually working on methods because it was fairly obvious at this point that we weren't really getting anywhere for one thing.

Q And I take it that that was not done, Doctor, and I will ask you shortly why further tests were not conducted.

A Yes.

Q But I am correct that they were not on the specimens from Jordan Hines and Kevin Pacsai?

A No, they weren't.

Q All right. So, the ones that were done on March 25th were the final ones that were done on specimens from either of those two children?

A Yes.

Q All right. Now, Doctor, with respect to the results or the levels that you did obtain on March 20th you have told us that you don't recall who in the first instance requested that those tissue assays be done. Do you recall whether or not you reported the results to anyone?

A No. These would not have been reported to anybody.





K.3

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Q. Is there any specific reasons  
for that, Doctor?

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A. Because of my lack of confidence  
in the results.

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Q. All right. And similarly when  
we come to March 25th, do you recall whether or not  
the results of the assays on Jordan Hines' and Kevin  
Pacsai's specimens that day were reported to anyone?

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A. They may have been discussed  
within Biochemistry but they wouldn't have been  
reported in any official form within the Hospital  
because, as I say, I had no confidence in those  
results.

13

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Q. Doctor, do you have the medical  
record there of Justin Cook? That is Exhibit 116.

15

THE COMMISSIONER: Is it 160?

16

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MS. CRONK: No, 116, sir. Is that  
Justin Cook?

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THE WITNESS: Yes.

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MS. CRONK: Mr. Registrar, the Doctor  
has it.

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THE WITNESS: What was the page, I'm  
sorry?

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MS. CRONK: Q. Doctor, I would ask you  
to turn to page 59 if you would. Do you have that,  
Doctor?

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K.4

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A. Yes.

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Q. All right. Doctor, at page 59

4

we see once again one of the clinical chemistry

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computer printouts and in respect of the date, March

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22nd, 1981 we see a Specimen No. D57980 referred to.

7

That is the same specimen number that appears in your

8

digoxin kit book as having been assayed on March 25th,

is that correct; Item No. 4 on page 171?

9

A. Yes.

10

Q. All right.

11

A. That is correct.

12

Q. If we look to the results

13

reported on this clinical chemistry printout we see

14

that the result is flagged and has an NA, not applicable

or not available?

15

A. Yes, not available.

16

Q. Not available?

17

A. Yes.

18

Q. And underneath that a footnote

19

if we look to the bottom there is an indication that

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this specimen is heart muscle, test not available.

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A. Yes.

22

Q. Do you see that, Doctor?

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A. Yes.

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Q. I take it however that on March

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25th that there was an attempt made to assay that specimen and that the result that was achieved on March 25th is the one reported in your digoxin kit book of greater than 5 nanograms?

A. Results, yes, yes.

Q. All right. And the assay was undertaken on that specimen?

A. Oh, yes, yes. The assay was attempted.

Q. I'm sorry, it was undertaken and done?

A. Okay, yes, all right.

Q. Can you help me, Doctor, again, now having had the benefit of having the clinical chemistry printout in front of you as to why that level would not have been reported with respect to that sample.

A. Yes. Basically ---

Q. Could you just wait a moment.

THE COMMISSIONER: No, it's all right.

MS. CRONK: Q. Doctor, now having had the benefit of seeing the clinical chemistry printout dated March 28th which indicates - which does not indicate a result for the specimen, can you help me if you can as to why the level that in fact was







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achieved on March 25th would not have been reported in respect of this specimen, if you know?

A. Well, simply because of our confidence in that result. If you do a test and you believe that that result is incorrect, then you don't report it to people.

Q. All right. Doctor, with respect to this Cook specimen, the heart muscle specimen, we know that the ones that you obtained from Jordan Hines and Kevin Pacsai on March 20th were homogenized and that was done to permit you to do the assays, I take it that when the heart muscle specimen was received by you from the body of Justin Cook that some similar process would have had to have been undertaken in respect of that specimen?

A. That is correct.

Q. All right. Do you recall whether or not it was submitted to homogenization in the same way that the other specimens were?

A. I believe that it was submitted to homogenization. The exact nature and volume and amount taken I don't have a record of. You know, this was not written down at this time. The other thing that happened was -- okay, maybe you don't want background now, maybe we'll come to background later.





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Q. Well, Doctor, my only question to you at this point is whether, what you recall specifically with reference to the Justin Cook sample and what was done to it.

A. Yes.

Q. I take it that you think it likely that it was homogenized?

A. Yes.

Q. All right. Do you recall anything else specifically about the methodology that was employed to assay that sample on the 25th of March?

A. No, other than it was by radio-immunoassay.

Q. All right. I take it all of these were done by radioimmunoassay?

A. Yes, they were.

Q. All right. Doctor, with respect to the Cook sample, do you recall where you obtained that heart muscle specimen?

A. I think that the Cook specimen was received with a Biochemistry requisition by the Biochemistry Department. I don't think anyone went out to get it.

Q. All right. I take it you didn't seek this one out?





K.8

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A. No, no.

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Q. And it wasn't obtained from

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Virology?

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A. No, this particular - as far as

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I am aware, this wasn't obtained from Virology. I

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think Dr. Cutz - is Dr. Cutz' signature on the

8

requisition or not?

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Q. All right. Well, I will take

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a look at that, Doctor, at the break and advise you.

A. Okay.

11

Q. With respect to Jordan Hines and

12

Pacsai, would I be correct in assuming that in each

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of those cases those specimens were taken at autopsy

14

from both of those children?

A. You mean in relation to page 28

15

on the previous book?

16

Q. I'm looking at page 171 as it

17

happens of your digoxin kit.

18

A. Oh, okay.

19

Q. But it is the same specimens

20

that we are talking about?

A. That's right.

21

Q. All of those tissue specimens

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would have been taken at autopsy of both of those

23

children?

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K.9

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A. I think that is the case, yes.

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Q. All right. Doctor, may we turn then to the balance of the digoxin assays which, as I understand it, you conducted on tissue and fluid samples from the body of Justin Cook?

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A. Yes. Before we do that may I offer an explanation as to why we didn't proceed further?

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Q. Yes.

A. Basically at the request of someone, who I'm not quite clear about within the Hospital, internally, there was a question as to whether it would be helpful to measure digoxin on some tissue samples during the week following the death of Kevin Pacsai. So, we were dealing with an internal Hospital matter, an unexplained death, a request by somebody to me to do some analyses that had never been attempted before over the weekend when Miller and Cook died. Following that we were in a totally different situation. The police had obviously been notified over that weekend and it was felt no longer appropriate that we should be attempting to do tissue samples, that now the police were involved, that samples from us had gone to Forensic Science and it was felt quite inappropriate for us to pursue this any further.







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Q. All right. Well, Doctor, were you instructed then at the beginning of the week, the 23rd of March, after the death of Allana Miller and Justin Cook or on the Tuesday or Wednesday of that week, to discontinue?

A. Yes, on the Wednesday of that week.

Q. All right, and you were instructed not to conduct any further digoxin assays on tissue or body fluid specimens?

A. That is correct, yes.

Q. And from whom did you receive those instructions?

A. From Dr. Hill.

Q. That is Dr. Hill of your department?

A. Yes.

Q. All right.

A. The ultimate source of those was Dr. Goldberg.

Q. Again of your department?

A. Yes.

Q. Doctor, you indicated that a number of specimens had gone from the Hospital to the Centre of Forensic Sciences. Do you know what





K.11

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happened with respect to these specimens from the  
body of Kevin Pacsai, Jordan Hines and the heart  
muscle specimens from Justin Cook's body?

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A. These samples in relation to  
the Virology samples, the small bottles in Virology?

6

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Q. Yes. I am talking about these  
samples from Kevin Pacsai and Jordan Hines which came  
from Virology.

9

A. Yes.

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Q. And as well the heart muscle  
specimen from Justin Cook. Were they sent by the  
Hospital to the Centre of Forensic Sciences?

12

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A. They were sent by the Hospital.  
They were collected by the police on a later occasion,  
a very much later occasion, many of these. They had  
been offered to the police on a prior occasion but  
they had indicated that they didn't want them at that  
particular time.

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Q. All right, thank you. Was it  
your understanding that after they had been collected  
they were forwarded to the Centre of Forensic Sciences?

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A. Yes.

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Q. All right. Do you recall when  
they were collected by the police?

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A. Do you mean specifically some of  
these samples?

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Q. I am talking first about the Pacsai samples, let's deal with those three. Do you know when they were collected and sent to the Centre of Forensic Sciences?

A. Some of them were sent in January of 1982.

Q. All right. Well, you keep saying some of them, Doctor. We are talking about three specimens here from Kevin Pacsai. Were those three specimens collected by the police and, as you understood it, then sent to the Centre of Forensic Sciences in January of 1982?

A. I cannot tell you whether any of those had gone prior to that occasion.

Q. All right. And similarly with respect to the two specimens from Jordan Hines, the heart and the lung specimens, do you know when they were collected by the police?

A. I think that they were collected in January, '82.

Q. All right. And similarly with respect to the heart muscle specimen from Justin Cook, do you know when that was collected by the police? If there are some records available to you, Doctor, that you would like to check in that regard, perhaps I





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could come back to that later and you will have an  
opportunity to check that over the lunch hour.

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A. Yes, certainly.

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Q. All right.

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THE COMMISSIONER: Yes, Mr. Roland?

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MR. ROLAND: Mr. Commissioner, I

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haven't interrupted my friend up to now on this  
because it has just sort of flowed from Phase 1, but  
my friend, if she is going to pursue all of this it  
is really into the second phase and it seems to me the  
issue here is how these children came to their deaths.  
When the samples were given and the police came in  
and all that is not really part of this phase. -

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THE COMMISSIONER: That's right. But  
I don't think it does an awful lot of harm if this is  
all we are going to have.

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MR. ROLAND: That's why I haven't  
interrupted.

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THE COMMISSIONER: And we will then  
have to call Dr. Ellis back.

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MR. ROLAND: I appreciate that and I  
haven't interrupted. I was just concerned that you  
not pursue it much further.

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MS. CRONK: All I wanted to know is  
how the samples got to the police and how they got  
there.

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Q. I take it, Doctor, that you are clear then as to what I am asking and you can check your records on that and, that is, if the information is available to you I am interested to know when those specimens that you assayed on March 25th were collected by the Metropolitan Toronto Police and sent, as you understood it, to the Centre of Forensic Sciences. Are you clear on that, Doctor?

A. The samples on March 25th?

Q. That's right.

A. Okay.

THE COMMISSIONER: Yes, Mr. Tobias?

MR. TOBIAS: Just a small point that I might clarify now because I didn't hear Dr. Ellis' response. Did you, Doctor, indicate that you thought it was January of '82 with respect to the Hines' specimens when the samples were collected?

THE WITNESS: Yes, I think that is correct.

MR. TOBIAS: Thank you.

MS. CRONK: Q. All right. Doctor, could I ask you now to turn to page 35 of Tab 45 of Exhibit 32B.

A. Page?

Q. I am sorry, did I say Tab 35, page 35.





K.15

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A. Yes.

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Q. As I understand it, Doctor,

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quite apart from the heart muscle specimen from Justin

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Cook that you assayed on March 25th, you did have

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occasion on March 24th, March 25th and March 26th to

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run digoxin assays on various other specimens from

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the body of Justin Cook?

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A. Yes.

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Q. Do you have page 35  
before you, doctor?

A. Yes, I do.

Q. There is a note on the  
right-hand side of the page dated March 24, 1981,  
doctor, the first part of which reads:

"Samples delivered by Mr. Barbour  
at 3:45 p.m. Sample 1, small bowel  
contents, Justin Cook."

And then a date, 24 March 0945 hours, and the IC and  
then a number and then Sample 2, gastric contents,  
Justin Cook, IC, and a number, and then a date,  
24 March 1981 and a time, 0945 hours.

Then Sample 3, fluid from chest,  
Justin Cook, and then the letters IC and a number,  
a date, 24 March, and a time of 0945 hours crossed  
out and another time, 1:25 p.m.

I ask you first, Dr. Ellis, is that  
your handwriting?

A. Yes, it is.

Q. Who is Mr. Barbour?

A. Mr. Barbour is Sgt.  
Barbaur of the Homicide --

Q. Of the Metropolitan  
Police Force?





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A. I think there may be a  
'u' in his name, b-o-u-r.

Q. You understood him to be  
a sergeant with the Metropolitan Police Force?

A. Yes.

Q. How did it come about,  
doctor, that the samples or specimens were delivered  
to you?

A. I was advised by Dr.  
Hill of various meetings that had taken place on  
the Monday, the 23rd of March?

Q. Yes, that would be  
correct. At least that is the date of Monday.

A. At which there had been  
some indication that the police wished us to perform  
certain analyses, but I think the general consensus  
of that particular meeting was on that particular  
occasion that, because the events had taken place  
in this Hospital, the Hospital was not - The  
Hospital for Sick Children - The Hospital for Sick  
Children was not really the place to do analyses  
for digoxin on forensic materials. On the  
Monday.

It was then my understanding a







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meeting took place on the Tuesday at which reluctantly an agreement had been made to do some tentative analyses on some materials supplied to us by the police.

Q. Doctor, so that I am clear on that then, as I understand it, it was your understanding that the Hospital and your laboratories had been requested then on March 23rd to undertake digoxin assays on various tissue or body fluid materials, and at that point the Hospital had declined. Do I have that correctly?

A. It is my understanding that at a meeting attended by Dr. Hill but not myself that that took place.

Q. And that was a request made of the Hospital by the police?

A. That was my understanding.

Q. And I take it, doctor, if I have understood what you said, that as a result of a further meeting the next day, on Tuesday, the 24th, that decision was reversed and it was agreed that those assays would be attempted?

A. I think there was some indication if -- again this is hearsay evidence if you like - that there was some indication that the





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police had tried alternative hospital sites or  
alternative laboratories with experience in digoxin  
analysis to see if they would undertake this work,  
and they also felt that it was inappropriate for them  
to do it.

Q. All right. And the result  
of the meeting on the 24th was that it was agreed  
they would be attempted at your Hospital?

A. In a very preliminary  
fashion.

Q. Were you then assigned  
the task of performing those assays?

A. Yes.

Q. And we see, doctor, that  
three samples are specifically referred to: one  
from the bowel contents of Justin Cook, secondly  
the gastric contents, and thirdly fluid from the  
chest.

There are as well dates and times  
beside each of those samples. Can you tell me  
what the date and time means in respect of each?

A. I think that those  
samples were labelled with dates and times and  
names and some indication as to what the fluids  
were, and this is transcribed into this book.





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Q. Did you understand the times to be the time at which the specimen had been obtained?

A. That was my understanding, yes.

Q. All right. And if they were obtained on March 24th at those times, I take it it was clear to you that they were specimens obtained at autopsy from the body of Justin Cook or at least from the body as it was available after autopsy?

A. Yes. I understand that these were samples taken during an autopsy examination in Owen Sound.

Q. Right. To the best of your knowledge, doctor, was it known by the police on March 23rd that you had attempted digoxin assays on tissue samples on Jordan Hines and Kevin Pacsai on the preceding Friday?

A. I don't think it was, no.

Q. Doctor, these three specimens then I take it were delivered by Sgt. Barbour to you at 3:45 p.m. on March 24th?

A. Yes, that is correct.

Q. They were delivered to you





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personally?

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A. Yes, they were.

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Q. And we see then, doctor --

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well, may I ask you were any other samples delivered  
to you at that time for assay purposes by the police  
or was it confined to these three samples from  
Justin Cook?

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A. There were a relatively  
large number, an unexpectedly large number on my  
part, and the reason why these are listed here is  
that Sgt. Barbour indicated to me that these were  
the ones of particular interest.

Q. What did Sgt. Barbour  
specifically ask you to do, if anything, with  
respect to these three samples?

A. To analyze those materials  
for digoxin.

Q. Right. And I believe you  
indicated he said that these three were of parti-  
cular interest?

A. Yes.

Q. Was there any urgency or  
timing attached to the request that those assays  
be done?

A. Yes, there was in that I







Ellis  
dr.ex. (Cronk)

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think he brought them along fairly late in the --  
yes, 3:45 p.m., fairly late in the afternoon, and  
I think I had said, well, you know, the assay takes  
awhile; I will do it tomorrow, and he had said in  
his opinion the matter was more urgent than that and  
that Sgt. Press was interested in specific samples,  
particularly the bowel, the gastric contents and the  
chest.

Q. That was from the body of  
Justin Cook, those three?

A. Yes.

Q. And did you then under-  
take them late that afternoon and that evening as  
a result of your discussion with Sgt. Barbour?

A. Yes.

Q. You have indicated,  
doctor, that there were a number of specimens  
delivered to you by Sgt. Barbour in addition to those  
three from Justin Cook.

Were assays for digoxin conducted  
by you on specimens from any other child other than  
Justin Cook from March 24th forward?

A. On any other child?

Q. Other than Justin Cook.

A. Yes, okay - you mean any





Ellis  
dr.ex. (Cronk)

L8

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other child of interest to the police or any other  
blood sample --

Q. I am talking about --

THE COMMISSIONER: The ones that  
were given to you.

MS. CRONK: Q. I am talking about  
tissue samples -- I'm sorry, doctor.

A. Yes, okay.

Of the large box that was brought  
by Sgt. Barbour only these were analyzed by myself.

Q. All right. Doctor, did  
you have occasion after that box of samples had been  
delivered to you by Sgt. Barbour to prepare a list  
of its contents of what the specimens were that had  
been provided to you?

A. Yes, I did.

Q. I am showing to you,  
doctor, what appears to be a handwritten version  
of a list of various specimens with the names of  
various children appearing beside each specimen  
number, and attached to that is a typewritten  
version containing the same information.

First, could you identify the  
handwritten notes as your own?

A. Yes, they are.





L9

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Q. And secondly, did you  
cause to be prepared a typewritten version of your  
handwritten notes?

A. Yes.

Q. And is that the list  
which you prepared of the specimens which had been  
delivered to you by Sgt. Barbour on March 24th?

A. I think this list was  
prepared on the occasion when he took the samples  
away; not on the occasion when he actually delivered  
them to me.

Q. All right. I take it  
then, doctor, however, that this was a list although  
prepared at the time the samples were re-collected  
from you by Sgt. Barbour of the samples you had in  
fact received from him on March 24th?

A. Yes.

Q. Do I have that correctly?

A. That is correct.

MS. CRONK: May that be marked,  
sir, as the next exhibit?

THE COMMISSIONER: Yes. 211.

--- EXHIBIT NO. 211: Handwritten and typewritten  
list of names and specimen  
numbers.

MS. CRONK: Q. I will come back





L10

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to this list in a moment, Dr. Ellis, but for the present purposes, as you have just mentioned, do you recall when these specimens were re-collected by Sgt. Barbour?

A. My recollection is later on in the week.

Q. Of that same week?

A. Yes.

Q. All right. So that this list would have been prepared later on that same week?

A. Yes, when these were collected.

Q. And were all the specimens outlined on Exhibit 211 returned to Sgt. Barbour at that time other than those portions of the specimens that had been used by you in the assays conducted on Justin Cook?

A. I think that is the case, yes.

Q. All right.

A. In addition, right at the bottom on the second page where it says "residual materials", there is something at the bottom, just above the line saying "also IC51236 Lanoxin from 4B".







L11

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Q. Yes, and what does that refer to, doctor?

A. This refers to a bottle of medication received from 4B on or about the 17th or 18th of March that was handed over at the same time, so I think this again suggests that I prepared this list giving the materials that Sgt. Barbour had given me and also additional materials that were of interest to him on that occasion.

Q. All right. Well, doctor, we know from your previous evidence this morning that you ran digoxin assays on samples of pure digoxin taken from the ward.

A. Yes.

Q. And that those assays were run on March 18th.

Was the sample of Lanoxin that was turned over to Sgt. Barbour by you at the end of the week the same sample on which you had run the assay on March 18th?

A. Yes.

Q. All right. Thank you, doctor.

And, doctor, we see there is mentioned at the top of your list, the typewritten





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version, a number of children and a number of specimen numbers, although not in all cases is the type of specimen identified from a number of children, and I take then in respect of the assays that you conducted after the specimens were delivered to you those assays were restricted to specimens from Justin Cook?

A. Yes.

Q. All right. And can you help me as to why no assays were undertaken in respect of the specimens from any of the other children?

A. Well, basically I think I mentioned a directive that had come from Dr. Goldberg that he felt it was inappropriate for us to be analyzing tissue samples of which we had no experience, forensic materials; that we should restrict our activities to serum samples, serum samples with which we have a lot of experience.

Q. I'm sorry, doctor, you may have told me this before, but when did you receive the directive to cease all further assays on tissue or body fluid samples?

A. Actually the directive came on the 25th of March.





L13

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Q. All right.

3

A. In other words, the day

4

following this analysis, and that directive was

5

discussed between myself and Dr. Hill, and in view

6

of the fact that I had already communicated some  
preliminary information the previous night to

7

Sgt. Press, and in view of the communication that I

8

had given to him on that occasion that I would under-

9

take further work on the samples which had already

10

been analyzed --

11

Q. Those were the samples

12

from Justin Cook?

13

A. Yes, these samples, bowel,

14

gastric material and chest fluid.

15

A. And in view of the

16

possibility that the material that I had assayed,

17

however I had assayed it, in view of the possibility

18

that that material might deteriorate before it

19

could be analyzed by other people, I felt that it

20

was appropriate to terminate this study in the way

21

that I had thought about on that occasion and then

22

do nothing further.

23

Q. That is what you proceeded

24

to do?

25





L14

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A. That is what I proceeded  
to do.

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Q. You completed the assays  
on these three specimens of Justin Cook but you did  
no others?

5

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A. Yes.

7

8

MS. CRONK: All right. May we  
break there, sir?

9

10

THE COMMISSIONER: The only thing  
is we are going to deal with what the results were?

11

MS. CRONK: Oh, indeed, sir.

12

THE COMMISSIONER: Yes, all right.  
2:30.

13

14

And do you want to give us some  
indication perhaps of how long you will be?

15

16

MS. CRONK: I would think I would  
be another half hour to forty minutes.

17

THE COMMISSIONER: All right.

18

Mr. Roland?

19

MR. ROLAND: I am not going to be  
very long. I have a few questions. Not many.

20

21

THE COMMISSIONER: Have you any  
thoughts, Mr. Brown?

22

23

MR. BROWN: I may be ten, fifteen  
minutes at the most, Mr. Commissioner.

24

25







Ellis  
dr.ex. (Cronk)

L15

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THE COMMISSIONER: Miss Forster?

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MS. FORSTER: I will take about

4

fifteen minutes.

5

MR. HUNT: Certainly no longer

6

than that.

7

THE COMMISSIONER: Mr. Young?

8

MR. YOUNG: I would say about

fifteen minutes.

9

THE COMMISSIONER: I have got a

10

lot of fifteen minutes here, but they are adding up.

11

MS. SYMES: I was wondering as a

12

personal request if I could ask to jump the queue

13

simply because I can't be here on Monday?

14

THE COMMISSIONER: Anybody ahead

object to her jumping the queue?

15

I think your answer is you may.

16

You can start right after Mr. Roland.

17

--- Luncheon recess.

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AA  
DM/cr

1 ---On resuming at 2:30 p.m.

2 THE COMMISSIONER: If I could just  
3 say a couple of words. I hope some time next week  
4 to make some kind of ruling on matters raised by  
5 Mr. Sopinka and other matters.

6 I am about to sign a letter to the  
7 Research Institute for the Hospital for Sick Children  
8 and they are the people who are having the workshop  
9 on digoxin. What I am doing is suggesting, or asking  
10 that Mr. Lamek and Dr. Mirkin be allowed to attend.  
11 Now, it may be refused, but I think I should tell you  
12 that is what we are doing. I know they wouldn't accept  
13 all of us and I certainly don't want to go myself and  
14 receive information. Dr. Mirkin will of course be  
15 here and can be asked about anything that took place;  
16 and Mr. Lamek cannot exactly be subpoenaed, but maybe  
17 he will disclose it willingly, what he heard. It  
18 seems to me that is the best we can do, because  
19 obviously they intend it to be a totally in-house  
20 discussion. I am afraid that the results if they  
21 are ever published, they said they will be published,  
22 they will not be published in time for this Commission.  
23 At any rate that is what I am doing. Anybody can  
24 make any comment who likes but it seems to be the  
25 solution. Yes, all right, Miss Cronk.

MS. CRONK: Q. Doctor, before we broke





1  
2 for lunch we were discussing your handwritten note  
3 that appears at page 35 and Exhibit 32B, Tab 45,  
4 would you put that before you again please.

5 A. Yes.

6 THE COMMISSIONER: Page?

7 MS. CRONK: I'm sorry, sir, page 35  
8 at Tab 45.

9 Q. Do you have that data?

10 A. Yes.

11 Q. Doctor, you explained to us  
12 what the references were in the first part of that  
13 handwritten note. I would like to turn now to the  
14 second, and we see there beside the word "bowel" Sample  
15 No. 1 "pH 5.95"; and similarly a pH reading for the  
16 gastric content sample and for the chest fluid  
17 sample. Can you tell me please what those references  
18 refer to?

19 A. Yes. This is just measuring  
20 the acidity of the various samples, the pH is a  
21 measure of the acidity.

22 Q. And I take it from that  
23 reference, Doctor, that after you received those  
24 three samples from Sergeant Barbour, that you conducted  
25 a test on each to determine what the level of acidity  
or the level of alkaline was in each of the specimens?





1

A. I removed a portion from the material supplied to me and proceeded to measure the acidity of that substance, yes.

2

3

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Q. And you did that in respect of each of the specimens?

5

6

A. Yes.

7

Q. What conclusion did you reach as a result of those tests for the pH level?

8

9

A. The conclusion I reached was that 5.35 was the lowest one even for the stomach, and that is fairly close to our assay pH of about 7, and my conclusion - I just measured it initially. The reason I measured it was basically to see if the acidity was excessive. That could have been the reason for any inappropriate, inaccurate results obtained later on.

10

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Q. And I take it then because of the levels that in fact you did record, that they were not excessive?

17

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A. Yes.

19

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Q. And on that basis were you able to conclude that in all likelihood the assay would not be interfered with by virtue of any effects of acidity or alkalinity in those specimens?

21

22

23

A. Yes, I made that initial

24

25







1  
2 assumption that I should proceed with the materials  
3 as they were, rather than adjust the pH to a pH  
4 absolutely accurate, absolutely equivalent to the  
5 assay buffer pH.

6 Q. And you did that because the  
7 range of discrepancy appeared to be lower?

8 A. Yes.

9 Q. And then, Doctor, the third  
10 entry is an indication by you that the samples were  
11 assayed neat, and then could you explain the balance  
12 of the entry please?

13 A. Yes. One in 21; we discussed  
14 dilutions previously on one in five, one in two, one  
15 is ten. It was convenient for me on that occasion  
16 to dilute approximately one in 20. In fact the  
17 dilution is actually one in 21 and that involved  
18 taking 50 microlitres, which is one-twentieth of  
19 a cc and adding it to one cc, one ml at assay buffer.

20 Q. You have told us, Doctor, in  
21 respect of the assays which you conducted on the  
22 tissue samples on March 20th, that you were required  
23 first to homogenize those specimens before you  
24 could embark on the assay itself, and I will come  
25 back in more detail to the methodology that you use  
for these tests, but did you homogenize these samples





1

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as well?

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A. I didn't homogenize these  
samples, no.

4

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Q. So I take it then that once  
you had obtained the pH reading on each of the  
specimens that you then proceeded to conduct your  
assay?

6

7

8

A. That isn't quite right, no.

9

10

In that I transferred some of that material to an  
additional tube, a small test tube and I centrifuged  
the sample, I put the tube into a centrifuge and  
centrifuged it.

11

12

13

Q. What was the purpose of doing  
that?

14

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16

A. For the purpose of removing  
any solid heavy material to the bottom of the  
centrifuge tube.

17

18

19

Q. Doctor, from Sample No. 3 which  
was fluid from the chest I assume that there would  
be no need to homogenize that sample because you  
received it in a liquid form?

20

21

22

23

A. Even the sample on the gastric  
contents and the sample on the bowel were relatively  
liquid, they were not solid, but there was solid  
material in them.

24

25





1  
2 Q. So I take it then that because  
3 they were relatively liquid there was no necessity  
4 in your view to homogenize those samples but you  
5 did proceed to centrifuge them for the purposes of  
6 segregating out the heavier or solid materials that  
7 were contained in the specimens; do I have that  
correctly?

8 A. Yes.

9 Q. Then, Doctor, we see finally  
10 an entry, the last entry on page 35 reads:

11 "Analysis preliminary was complete  
12 at 9:15 p.m. and provisional results  
13 were communicated to Sergeant Press  
14 at his home."

15 And then a telephone number. Did you personally call  
16 Sergeant Press and report those results to him?

17 A. Yes.

18 Q. Those were what you described  
19 as provisional results?

20 A. Yes. I hope that is his  
21 telephone number.

22 Q. Do you recall however calling  
23 Sergeant Press and reporting the results to him on  
24 the assays that you did that afternoon and evening?

25 A. Yes that was the telephone





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number that I called.

Q. Doctor, where did you understand these specimens had been obtained by Sergeant Barbour?

A. It was my understanding that these had come from Owen Sound, he had had to go out of town to obtain them and this is why they arrived late.

Q. And was that because, as we have heard in other evidence, an autopsy was performed in Owen Sound on this child?

A. I think that was the situation, yes.

Q. Was it your understanding then that these were specimens obtained at autopsy in Owen Sound?

A. Yes.

Q. If we turn to the very next page, Doctor, do we see this set out under the date March 24, 1981 the results of the various assays that you conducted on these specimens on March 24th?

A. Yes.

Q. And the results appear to be set out in two distinct columns, the first of which is entitled "Result One"; and then we see the letters







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LKB in brackets, can you help me as to what that  
stands for?

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A. Yes. As I mentioned earlier  
we had a new gamma counter, a machine for counting  
radiation that would be used for the counting of the  
radiation if we purchased it. The machine was called  
an LKB, that was the instrument manufacturers and it  
was in the laboratory at the time for evaluation  
purposes for about a week or 10 day period which  
happened to coincide with this particular one.

11

12

13

Q. Did you count then the results  
of these assays first on that trial gamma counter  
that you happened to have in the lab?

14

15

16

A. Yes.

Q. And the letters LKB then refer  
to the manufacturer's trade name on that particular  
gamma counter?

17

18

19

20

21

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25

A. Yes.

Q. Then we see a second column ---

A. That is the manufacturer's name.

Q. I am sorry.

A. That is the manufacturer, okay.

Q. Then we see a second column

of results and were those results also obtained on  
the new and trial gamma counter that you had, or





1

2

were they obtained on something different?

3

4

A. No, my recollection is that these were obtained from our regular gamma counter.

5

6

The regular gamma counter would not analyse one sample in a period of one to two minutes depending on how much of a hurry you wanted to obtain the results.

7

8

The LKB machine in that same time period will analyse 12 samples so it was much faster.

9

10

11

12

13

Q. I take it then, Doctor, that the fact that we see results set out in two columns should not be interpreted to mean that the specimens were assayed twice on this day but rather only the results were counted twice on different gamma counters?

14

A. That is correct.

15

16

17

18

19

Q. And, Doctor, if we look to the assay results for each of the specimens that were assayed, we note first under Items 1 and 2 that two controls were used, Control A and Control B. Were they the kind of controls that you normally used in conducting a digoxin assay?

20

A. Yes.

21

22

23

24

25

Q. And then we see on sample, Item No. 3, Sample 1 relates to the bowel as does Item No. 4, the entries of 3 and 4 both pertain to the bowel?





1

2

A. Oh yes, Sample 1 is listed on  
the previous page, yes, bowel.

3

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Q. Doctor, with respect to the  
results on the bowel contents, and help me if I am  
reading this incorrectly; I understand first you  
assayed that specimen neat and obtained a result on  
the first gamma counter of 9.4 and that is in brackets?

8

9

A. Yes.

10

Q. What do the brackets mean,  
Doctor?

11

12

A. The brackets mean that this  
was an extrapolated result produced by the gamma  
counter.

13

14

Q. Should I take that correctly  
then to mean that the result was greater than 5?

15

16

A. Yes.

17

Q. Was it greater than 10, or was  
it greater than 5?

18

19

A. It was greater than 4.7 or  
5, can we take that equivalent?

20

21

Q. All right. So it was greater  
than the maximum available to you on the first run  
through?

22

23

A. That is correct.

24

25

Q. And on the second gamma counter





1

2

a similar result was obtained and again it was greater than 5?

3

4

A. Yes.

5

6

7

8

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Q. And then Doctor, we come to the diluted assay, and you diluted the specimen times 21 as you have indicated and the result on the first gamma counter is indicated to be 8.5, again in brackets. Can you help me as to why the brackets appear for that result?

10

A. For the same reason.

11

12

13

Q. Would we then be correctly interpreting the results were were to multiply 8.5 times 21?

14

A. Yes.

15

16

17

Q. And I have done that mathematical calculation, Doctor, and accepting that my mathematics are correct, if you would, that result appears to be 178.5 nanograms?

18

19

20

21

A. Yes, but this is an extrapolation by the computer, either one computer or the computer within the LKB gamma counter itself, an extrapolation above the highest standards available, and therefore is inaccurate.

22

23

24

25

Q. Which is, the 8.5?

A. The 8.5, anything in brackets







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2

here, okay, is inaccurate, but it is actually what came out of the print-out of the gamma counter.

3

4

Q. Do I take that to mean then that even at the times 21 dilution ---

5

6

A. A result less than 4.7, 4.85 was not obtained.

7

8

9

10

11

Q. My question was going to be, Doctor, even at a 21 times dilution you could not obtain a fixed level result on the sample because the concentration of digoxin, or what was registering as digoxin was too high?

12

A. That is correct.

13

14

15

16

Q. And if we were to treat that result as we have treated others mathematically on the normal assays that you run, and were to multiply the results shown by the gamma counter by 21 the results would be in the vicinity of 178 nanograms?

17

A. Yes.

18

Q. Under, Doctor ---

19

A. I'm sorry, sorry, 178?

20

Q. 178.5.

21

A. 178.5, how did you obtain that?

22

Q. 8.5 times 21.

23

A. Yes but I have said 8.5 cannot be used as any number meaning anything.

24

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DMra 1

AA3.1 2

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Q. I understood the qualification you have introduced, and that is there was the extrapolation done on the computer component of the gamma counter. I am simply saying, if we were to try and get a fix on what that number meant in nanograms, erroneous though it might be, it would be in the vicinity of 178. That is the result of having diluted the specimen times 21.

A. Yes, but I would prefer to take the view that our top standard was of the order of 5 nanograms per ml. So, on dilution, the answer was greater than 105, or greater than 100 or thereabouts, rather than to take this number in brackets.

Q. So, what you are doing to arrive at that, you are simply multiplying the top standard of 5 times 21?

A. Yes.

Q. And you don't know how high the reading was over 105?

A. No. No.

Q. And similarly, would the count on the second, and the gamma counter that you had used most frequently in your lab, the result was shown at 8.7, slightly higher than on the LKB





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gamma counter, and I take it from what you have just said that that reading, as well, you think we should be interpreting as greater than 105?

A. I am sorry. This is Item, line 4?

Q. Yes.

A. Yes.

Q. I am looking at Result No. 2 on the normal gamma counter that you were using in your laboratory.

A. Yes.

Q. Once again, the result of 8.7 is shown in brackets and all we can safely take from that number, I take it, is that the result was in fact greater than 105 again?

A. Yes, or thereabouts.

Q. And we don't know how much higher?

A. No.

Q. Doctor, we then come to the assays that were conducted on the stomach for gastric contents, and we see once again that you assayed them neat. The result on the first gamma counter was 8.6, and I take that to mean greater than 5?





Ellis  
dr.ex. (Cronk)

1  
AA3.3 2 A. Yes.  
3 Q. The result with the  
4 second gamma counter was 8.7. Do I correctly take  
5 that again to be greater than 5, or greater than the  
6 maximum?  
7 A. That is correct.  
8 Q. And you then diluted the  
9 specimen times 21, and the result on the first  
10 gamma counter of 1.8 was obtained.  
11 Now, doctor, I had taken that  
12 times 21 to obtain an indication as to what the  
13 actual level might have been. Are you able to help  
14 me then as to what the level would be, given that  
15 it was diluted times 21?  
16 A. Yes. 21 times its value,  
17 which I think will work out as 39; in other words,  
18 equivalent to 39.  
19 Q. All right.  
20 Well, to help you with that,  
21 doctor, I take it that, in this case then, we should  
22 directly multiply the 1.8 times 21.  
23 A. Because 1.8 is less than  
24 4.7 or 5.  
25 Q. Yes.  
A. It is on the standard







AA3.4

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curve.

3

Q. And, therefore, can be

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multiplied out straight?

5

A. That is correct.

6

Q. And by my calculations,

7

doctor, the 1.8 times 21 results in a reading of

8

37.8 and, if we take the reading on the second gamma

9

counter of 1.9 and again multiply that out, it comes

10

out to 39.9, and you have shown a mean result for

11

A. Okay.

12

Q. Doctor, with respect to

13

the chest fluids, again you assayed it neat, and I

14

take it the first reading was greater than 5?

15

A. Yes.

16

Q. As was the second?

17

A. That is correct.

18

Q. And you have shown that

variously by 9.5 and 9.7.

19

A. Yes.

20

Q. Then, once again, you

21

have diluted the specimen times 21, and these results

22

again were under the maximum that could be measured.

23

On the first gamma counter, it read 3.9.

24

A. Yes.

25





AA3.5

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Q. Do I have it correctly then, doctor, that to arrive at an approximation of the true reading on dilution, we should multiply that by 21?

A. Yes.

Q. And that results, by my calculation, doctor, at 81.9 nanograms.

A. Yes.

Q. And on the second gamma counter, you show a result of 3.8, which, again, is below the maximum that can be measured and, therefore, to arrive at any indication of the true level recorded, we should multiply that by 21, and that mathematical calculation results in 79.8, or almost 80, and you show the mean result as 81.

Have I interpreted that correctly, doctor?

A. Yes.





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Q. All right. Doctor, we then see at Item No. 12 on the page a reference to Cook and a specific sample number which appears to be 57978. Do you see that, Doctor?

A. Yes.

Q. Item No. 12. Can you tell me what specimen or what sample you were assaying from Justin Cook at that stage?

A. I think this was a sample that had been left on the red cells.

Q. All right. Well, Doctor, to help you could you turn back to page 32 of the same tab that we are at and perhaps you could just keep your hand at the page that we are on but go back to page 32.

A. I'm sorry.

Q. Page 32.

A. Page 32.

Q. Do you have that?

A. Yes.

Q. All right. Doctor, we see there at Item No. 30, which is a specimen that was assayed on Sunday, March 22nd when we know you were not at the Hospital, reference to specimen No. D57978 which resulted in a reading of greater than 100 nanograms.





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I take that to be the same sample that you then reassayed on March 24th with the results as shown on page 36 that we were just looking at.

A. Yes.

Q. All right.

THE COMMISSIONER: I'm sorry?

MS. CRONK: Q. The specimen shown as having been assayed on March 22nd was an autopsy specimen numbered D57978. Do you see that, Doctor?

THE COMMISSIONER: It was assayed twice, was it not, on the 22nd of March?

MS. CRONK: Q. It was actually assayed a number of times, sir, but we have yet to review the evidence on that sample. Do you see the sample number there, Doctor?

A. Yes.

Q. All right. And then if we turn over to the results of the assays that you conducted on March 24th it appears to be the same number, does it not?

A. Yes, it does.

Q. All right. And if I were to suggest to you that the evidence to date indicates that that sample was a blood sample drawn at autopsy under the supervision of Dr. Cutz and sent to your







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laboratory for testing, does that assist you in any way in recalling what the sample was that you were assaying on the 24th?

A. Yes, I believe it was essentially the same sample that had been analyzed on the previous Sunday.

Q. All right.

A. When you separate a blood sample you remove serum, the clear fluid above the cells. The cells are left. Occasionally there is a little bit of material left on those cells, which is usually left with the cells and that material is, if you like, compromised because it has been in contact with the cells. The fact that I have written "on cells" suggests to me that it was a kind of leftover specimen if you like that I was analyzing at that particular time.

Q. Was it in fact blood, Doctor?

A. Yes. I'm sorry, it was serum.

Q. Serum?

A. Okay, or plasma.

Q. It wasn't whole blood, it was serum?

A. Yes.

Q. Okay. And that was the same





BB4

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sample that had been assayed the previous Sunday,  
the 22nd of March?

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A. It was the same sample taken  
by the pathologist but a different fraction.

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Q. Part of the same sample?

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A. Yes.

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Q. All right. Doctor, can you  
help me, and it appears you first ran that sample or  
assayed it at 21 times dilution?

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A. Yes.

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Q. All right. And then I will  
come to this in a moment but you did the same thing  
two more times at 21 times dilution but you appear  
to have heated the sample. Can you tell me first  
why you were reassaying this sample at all, having  
regard to the fact that the samples had been provided  
to you that day and that Sergeant Barbour had  
indicated were of particular interest to the  
police were the bowel, gastric and chest samples  
which you had assayed previously?

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A. I'm sorry?

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Q. Why were you assaying this  
serum sample again if the ones that were indicated  
to be of particular interest were the bowel, stomach  
and chest samples?

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BB5

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A. Well, basically I think it had only been assayed once before on the Sunday, isn't that correct, or had we done it again on the Monday?

Q. No, my understanding, Doctor, my understanding was that Dr. Soldin will be able to tell us exactly what was done with that sample, but there are three entries for the sample all on the Sunday.

A. Yes.

Q. Which appears to suggest it was assayed three times on the Sunday.

A. On the Sunday but not subsequent to that. So, we analyzed Pacsai several days after the initial analysis just as a check. I decided on this occasion to include that in my batch.

Q. This then was a cross check or a precautionary measure that you were taking by running the assays again?

A. Yes.

Q. All right. Doctor, dealing with the result of the first assay, as I understand it, your reading was exactly 4.7 on the first gamma counter and it was 4.6 on the second?

A. Yes.





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Q. All right. And because that is within the range that is measureable on the assay and it was diluted times 21, I take it to get the exact reading we should multiply those numbers again by 21?

A. By 21, yes.

Q. All right. And in that instance, Doctor, and please feel free to check my arithmetic, by my calculations that results in levels of 98.7 and 96.6 on that serum sample.

A. Okay.

Q. All right. Doctor, can you tell me next when you chose to assay the sample again at a 21 times dilution. First of all, it appears that you heated the sample before doing so, is that correct?

A. Yes.

Q. And you did so for 30 minutes at 56 degrees?

A. Yes.

Q. Why did you do that, Doctor?

A. I don't exactly remember. I don't exactly remember why I did that.

Q. It is not usual I take it however in running digoxin assays on serum, and of







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course that is what this sample was, to heat the  
sample before this test is undertaken, is it?

4

A. No, it isn't, no.

5

Q. All right. Was there anything

6

in your experience which suggested that heating the  
sample would increase its stability or had some  
advantage to the assay?

8

A. No. I'm not quite sure

9

exactly how virology treat their tissue samples that  
had been analyzed a few days prior to this. If there  
is some kind of sterilization procedure that might  
involve a heating period of 56 degrees and whether  
I had that at the back of my mind when I did it,  
I don't know.

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Q. In other words, it might have  
been done for comparison purposes?

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A. Yes. I might again have been  
looking for artefacts because, just in case, you know,  
this number on this child who had not received  
digoxin, just in case there may possibly be something  
unusual about it, but I had also analyzed another  
one, Weil just above here, 9 and 10. The analysis  
had been performed with the sample as it was and  
also at 56 degrees for 30 minutes as well.

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Q. I take it Weil was a different

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patient, Doctor?

A. Yes, it was.

Q. And there is no indication there of the type of sample involved, do you recall whether it was a tissue or a fluid sample or was it serum?

A. No, I have no direct recollection of that sample.

Q. And I take it you don't specifically recall why in the case of Justin Cook you appear to have heated the sample first at 56 degrees for 30 minutes and assayed it on that basis and then subsequently heated it at the same 56 degrees but this time for 90 minutes and then reassayed it again for the third time at times 21 dilution. You have no recollection?

A. Not specifically, no.

THE COMMISSIONER: Can I go back to Item 12 just for a moment. I take it, and you may have asked this and I may have missed it, that is to be multiplied by 21 too?

THE WITNESS: Item 12, Cook on cells multiplied by 21, yes.

THE COMMISSIONER: Yes, to get an answer.





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MS. CRONK: Q. And similarly with respect to Item 13, those levels are expressed to be brackets and I take it that with respect to the result on the LKB gamma counter, that merely means that it was over 5, greater than 5?

A. In respect of Item...?

Q. 13.

A. 13, yes.

Q. Once again it was over the maximum?

A. Yes. In other words, I am regarding 5.0 as over the maximum. So, we must have been taking 4.7 as our upper limit. But in fact it isn't very much above the maximum.

Q. The 5.1?

A. Yes.

Q. But having regard to the fact that the sample had been diluted times 21, Doctor, I take it then the most that we can say in terms of trying to achieve or understand a certain reading on that assay is that the result was greater than 105.

A. 4.7 times 21.

Q. 5.1 times 21. Your maximum of 5 times 21.

A. No, the maximum is 4.7, right,





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times 21.

Q. Well, Doctor, we have heard that it depends on when you were making the entries in the book and I had understood you earlier to tell me with respect to the samples for example on the bowel contents that if we wanted to understand what that diluted assay had resulted in we should take the result and multiply by 21, the result being greater than 5. I would have thought the same applied to the Cook sample. You have expressed the result in brackets, have you not?

A. Yes.

Q. All right.

A. Because it is over the limit.

Q. It was over the limit.

A. Over the top standard.

Q. And the limit of the top standard was 5.

A. 4.7; 4.7 times 21.

Q. 4.7 times 21 would give us an indication as to what the best we can do on that reading is?

A. Yes.

Q. All right. And similarly with respect to the reading of 5.0 that is expressed in







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brackets, again on this assay I take that simply to mean over the maximum?

A. Yes.

Q. And because there is a dilution factor and the dilution number is 21, once again it is effectively the same result, we should multiply 4.7 times 21?

A. Yes.

Q. All right. Doctor, is there any significance in your mind between doing the multiplication based on 4.7 or based on 5? You have been treating both as the maximum of your test, have you not?

A. Yes, we have.

Q. All right.

A. No, I just regarded these results that, independent of heat, for whatever reason I was heating them at 56 degrees, independent of heat and these results confirmed the previous results that had been obtained on this particular sample.

Q. In other words, they were greater than 100.

A. They were of the order of 100 or slightly greater; yes, greater than 100, okay.





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Q. Can you say, Doctor, on the basis of these test results that the level was 100 exactly?

A. No, I can't say exactly.

Q. So, the result then suggested it was greater than 100, which is the result that had been achieved the preceding Sunday.

THE COMMISSIONER: Greater than 98.7, I have done the mathematics.

MS. CRONK: You are ahead of us, sir.

THE COMMISSIONER: No, I just felt I had to do something.

MS. CRONK: Q. I take it that was your conclusion then, Doctor?

A. Yes.

Q. All right. And that applied as well to the sample that you had heated at 56 degrees for 90 minutes?

A. Yes.

Q. All right. Both of those readings resulted in readings of greater than 100.

A. All of these results point to the result that was obtained by my technologist on the Sunday as being correct.

Q. All right. Doctor, with respect





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3 to the results on the bowel contents, what significance  
4 did you attach to those results if any?

5 A. I had never analyzed any bowel  
6 contents before. I had never analyzed any fluid,  
7 body fluids as far as I was aware before. Either  
8 the result is correct or it is an error. The result  
9 obtained on the bowel content seemed to be exceptionally  
10 high, which might be explained by digoxin being there  
11 at a higher concentration than it was in the blood  
12 or other fluids that were analyzed. That might  
13 indicate that the highest concentration of digoxin  
14 then that I had seen was actually in the intestine  
15 and the follow-up to that is that the highest concen-  
16 tration of something he sees in the intestine, then  
17 it would seem likely that digoxin has been given  
18 orally and has not been completely absorbed from the  
19 intestine prior to the time when the samples were  
20 taken.

21 Either that, the other option would be  
22 that if the digoxin had been given intravenously he  
23 would then have to guess that digoxin had got from  
24 the blood, from the vein where it had been given to  
25 the blood system into the intestine by some mechanism,  
some secretory mechanism, if you like, which seemed  
a less likely explanation. That is if the answer





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is correct.

The other possibility is that the answer is not correct and because we are dealing with some material of which we have no previous experience components of the contents are interferring with immunoassay procedure.

Q. That's producing an erroneous result.

A. To produce an erroneous result.

Q. We know, Doctor, that you spoke to Sergeant Press that evening and reported to him the provisional results that you had obtained on the assays on the bowel, stomach and chest contents.

A. Yes.

Q. Did you explain what the actual results were to Sergeant Press that evening?

A. I believe I gave an indication as to what preliminary results I had obtained with the qualifier that I have just given you, or similar ones, explaining that it appeared that in the bowel results were high, but indicating to him that I had thought about perhaps further tests that could be done on this material, that I would proceed to do.

Q. All right. I take it that you as well informed Sergeant Press as to the results of







BB15

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the assays on the stomach and chest contents?

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A. Yes.

4

Q. All right. And did you have

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reservations or concerns of the kind you have just

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expressed with respect to the bowel contents in

7

respect of the results from the stomach and chest

8

specimens as well?

9

A. Yes, there would be reservations.

10

Q. Did you express reservations to

Sergeant Press when you informed him of the results?

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A. I indicated that these were

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preliminary results and that I had reservations about

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them.

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Q. Right. Well, Doctor --

A. I can't remember actually whether an exact number was communicated to him at that time or whether I just gave as an indication to him that these appeared on the basis of this first run to be extremely high, particularly in the bowel contents.

Q. I take it then that you considered the results on all of the specimens (that is the bowel, stomach and chest specimens) to be high, but particularly high in the bowel?

A. Yes.

Q. Did you as well inform Sergeant Press of the re-assays you had done on the blood serum specimen?

A. The Cook sample, no.

Q. Was there any particular reason for that?

A. Well, those results had been communicated to the police prior to this occasion.

Q. And, Doctor, you told us that you indicated to Sergeant Press that there were some other matters that you considered and that you would undertake those and re-assay the specimens further, and did you in fact proceed to do that on the 25th of March?





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A. Yes, I did.

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Q. Right. Doctor, I would ask you

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to turn to page 170 of your digoxin kit book if you  
would, please.

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As I understand it, Doctor, you did  
further assays on the 25th of March?

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A. Yes.

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Q. And as well with respect to  
the bowel specimen on the 26th of March. Page 170,

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Doctor. Is that correct? You did assays on these

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samples both on the 25th of March and the 26th?

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A. Yes.

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Q. All right. And, Doctor, the  
page to which I have drawn your attention is dated the  
26th of March, 1981, and it is entitled, "Summary of  
Findings on Gastric, Bowel and Lung Fluids from  
Justin Cook".

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Do the contents of this page represent  
the summary of the results which you obtained over  
those three days, March 24 to March 26 on these three  
specimens from Justin Cook?

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A. Yes, they do.

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Q. All right. And if we look to  
Specimen A which is described as the stomach specimen  
and read across those columns, the first column we

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see has to do with pH level which you told us you measured and there is an entry there as to what the pH level was.

Do you see that, Doctor?

A. Yes.

Q. And the next column as I interpret it - please tell me if I am correct - it is the result of the analysis that you conducted on the 24th of March. Is that correct, Doctor?

A. Yes.

Q. And then the next two columns relate to assays conducted on the 25th of March, but it appears on the second assay done on that day, once again you heated the samples; this time at 100 degrees for 60 minutes.

Do I have that correctly?

A. Yes. You mean column 1, 2, 3 --

Q. 4. And the 5th column sets out results of assays which you conducted on March 26th and they appear to be restricted to assays conducted on the bowel sample?

A. Yes.

Q. Right. Dealing with the results then first, Doctor, purely on the stomach we see that the result on the 24th of March at a 21 times dilution







CC.4

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was 39 nanograms?

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A. Yes.

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Q. And then reading across the page,

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on the 25th, when you repeated it again at times 21,

6

you got a reading of 34 nanograms?

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A. Yes.

8

Q. You then heated the sample at

9

100 degrees for 60 minutes?

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A. Yes.

11

Q. Right. And got the same reading

of 34?

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A. A portion of that sample was

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heated, and it may have been analyzed in exactly the

14

same batch; not sequentially.

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Q. All right.

16

A. Okay.

17

Q. In any event the result on both

parts of the specimen was the same?

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A. Yes.

19

Q. And the mean result there that

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you have shown - I am sorry, Doctor, we should do the  
rest.

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As I understand it on a neat analysis

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of the specimen on the 24th it was simply greater than

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the maximum and wasn't measureable without further  
dilution?

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A. Yes.

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Q. You did not repeat a neat assay  
on either of the two succeeding days?

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A. That is right.

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Q. You did, however, dilute the  
specimen at a 10 times dilution on the 25th of March;  
this time obtained the result of 30?

8

A. Yes.

9

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Q. And you did on the same day,  
March 25th, dilute the sample at a times 51 dilution,  
and this time got a result of 36?

12

A. That is right.

13

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Q. And then the same day after  
heating the sample you diluted it, 1 in 101 times and  
obtained a result of 30. Is that correct?

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A. Yes.

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Q. And then on the right hand side  
of the page, Doctor, you are showing a column entitled  
"mean value", and the mean value which you show for  
the stomach, the assays on the stomach contents, is  
33.8?

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A. Yes.

22

Q. Do I have that correctly?

23

A. Yes.

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Q. Is that the mean, Doctor, of all





CC.6

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the results which you obtained on that specimen over  
those three days?

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A. Yes.

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Q. All right.

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A. I hope so.

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That is what you intended to  
convey?

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A. That is what I calculated, yes.

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Q. And, Doctor, we see a reference  
to "n equals 6 duplicates". Can you explain for us  
what that means, please?

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A. Yes, basically there are six  
observations here I think, three on the top line and  
two and one, so there are six.

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Q. By observations you mean results?

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A. By observations I mean independent  
results, yes, and these were in duplicates.

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Q. And, Doctor, if we were to do  
the same exercise with respect to the assays that  
were run on the lung contents, I take it that the  
result of all of the assays which you did on the lung  
contents over those three days resulted in a mean  
value of 82.6?

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A. Yes.

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Q. And similarly, if we were to go

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through the same exercise with respect to the assays run on the bowel samples, your mean result over all of the assays for those three days was 773.9 nanograms?

A. Yes.

Q. Do I have that correct?

A. Yes.

Q. And in addition with respect to the bowel sample a great many dilutions were carried out and many more assays were carried out with respect to that specimen than there were with respect to the stomach and the lung specimens?

A. Yes.

Q. Do I have that correctly?

A. Yes.

Q. Doctor, in each case after you have shown mean value of the results of those very specimens you have expressed a percentage confidence range on the right hand side of the page.

A. Yes.

Q. Dealing first with the results on the stomach specimen, you indicate 26.8, a range of 40.8, with a 95% confidence range.

Can you explain for us, please, what you meant by that?

A. Yes, all that I meant was if you







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take these six results there is a statistical notation you can use to give you an approximate area where you feel the result is likely to be, and that area is somewhere between 26.8 and 40.8.

Statistically you would expect that in 95% of the occasions, but it would be in that kind of ball park area.

You calculate that actually by - in the column under mean value where, for example, the first item is 33.8, there is a little number under there 3.5 which I think is the standard deviation if you calculate it out - and that has nothing to do with standards by the way in terms of this assay but it is a statistical notation, standard deviation.

Q. Yes.

A. And two standard deviations above or below this mean value will give you this range. I hope. In other words 33.8 plus twice 3.5 is about 7 on top of that which takes you to about 40, and taking about 7 away from 33.8 we go down. Okay?

Q. Doctor, I am not sure that I understood all of that but can you help me with this: do I take it that with respect to the results on the stomach specimen, stomach contents specimen, you arrived at a 95% confidence range which means you





CC.9

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are 95% confident that the actual level on those contents was between 26.8 and 40.8 nanograms?

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A. As best I could judge using this method that was available to me.

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Q. Based on your calculation?

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A. Yes.

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Q. And similarly, Doctor, with respect to the results on the lung specimen, you were 95% confident that the result was somewhere between 77.8 and 87.4 nanograms?

10

11

A. Yes.

12

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Q. And, Doctor, when we come to the results of the bowel assays we do not see a range indicated but rather 870.

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Am I correctly interpreting that to mean you were 95% confident that the actual level in those specimens was 870 nanograms?

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A. No. Putting this back - putting this back together again and trying - I guess I may have well been interrupted when I was calculating this table out so there is a lower limit missing, and the lower limit is of the order of 2 times 48 taken away from 773.9 which will give us the kind of range that we are --

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Q. About 650, Doctor?





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24  
25

A. Of that order, yes.

Q. So you would then be 95% confident that the actual level in that sample was somewhere between 650 and 870 approximately?

THE COMMISSIONER: Oh, yes, I guess so.

MS. CRONK: Am I incorrect in that?

THE COMMISSIONER: No, you are right.  
870 is the top.

MS. CRONK: That is right.

THE WITNESS: Yes.

MS. CRONK: That is my understanding.

THE COMMISSIONER: The bottom line is 650.

THE WITNESS: Of that sort of order, yes.

MS. CRONK: Q. Right.

A. Using this method, okay, it doesn't mean you can guarantee that this method is getting exactly the right answer.

Q. No, I understand that, Doctor. But based on the information available to you, the methodology that you had used and the results that were recorded, that was the confidence range that you arrived at to get this result?

A. Yes.





CC.11

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Q. And, Doctor, do you on the right hand side of the page then set out your conclusions with respect to these experiments in summary fashion?

A. Yes, I do.

Q. And dealing with them in brief then, Doctor, you indicate that:

"Experiments on the bowel, stomach and lung contents all support the view that the immunoassayable material is digoxin."

A. Yes.

Q. "The results obtained on three separate days suggested that digoxin was stable in the fluids at the measured pH at refrigerator temperatures. Evidence that the immunoassayable material was digoxin:"

and then you proceed to set out a number of factors.

First, may I ask you this, Doctor: when were these notes made with respect to your conclusion?

A. My conclusions were made at or around the 26th of March, 1981. Very close to that date.

Q. And you set out, Doctor, a







CC.12

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A. Yes.

8

Q. Can you briefly explain what

9

you mean by that, Doctor?

10

A. Briefly it is possible for a

11

material to cause displacement of radio labelled

12

substance in a radioimmunoassay procedure without it

13

being actually the material that you are attempting

14

to assay. In other words, you might have displace-

15

ment which looks as though it is digoxin of the

16

radioactive material from the antibody, but it perhaps

17

is some totally erroneous - some material other than

18

digoxin causing that displacement.

19

Q. Would I be correct in

20

interpreting that factor, Doctor, as meaning material

21

which reacted to the assays in this case on these

22

specimens reacted in the same way or fit the same

23

curve that you would expect to see on a normal

24

digoxin assay?

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A. Yes. When you have the very

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CC.13

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unusual materials - if you take half the amount of material and a quarter of the amount of material and a tenth of the amount of material, you get totally illogical answers in many cases. And they do not follow the standard curve in respect of dilution. You don't get half the answer, but in this particular case --

Q. But all of this despite numerous dilutions?

A. Yes.

Q. And the second factor, Doctor, that you noted that it, the material, was absorbed onto the charcoal, and I took that to mean simply that the material was behaving like digoxin or at least as you would expect digoxin to behave?

A. Yes. My major concern, particularly about the bowel contents at the time I was doing this experiment was that the bowel contains enzyme material, proteins, that will digest other proteins as part of the normal digestive process.

If those enzymes in fact try to - if those enzymes turn their attack not on protein but on the immunoglobulin that was being used in the radio-immunoassay, it is conceivable that they may interfere with the immunoassay. And if we are dealing with a protein material rather than digoxin then the protein





CC.14

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material I would not expect to have been absorbed  
onto charcoal.

3

4

Q. But that is not the case here?

5

A. But many small molecules are  
absorbed onto charcoal just like digoxin is.

6

7

Q. All right. But as far as you  
were concerned, based on all of the assays that you  
have done on these various dilutions, the material  
that was reacting to the test was reacting as you  
would expect digoxin to react with the charcoal?

8

9

10

11

A. Yes.

12

13

Q. And the third factor that you  
indicate, Doctor, was that the material was stable to  
heat at 100 degrees Centigrade for 60 minutes.

14

15

I have been interpreting that to mean  
that you felt even though heated the material was  
stable?

16

17

A. Yes. Many proteins, many  
enzymes heated for this length of time in boiling  
water would be destroyed.

18

19

20

Q. And that was not the case here?

21

A. That was not the case here.

22

Q. All right. And then finally  
the fourth factor which you felt supported the view  
that the material that was being measured was in fact

23

24

25





CC.15

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digoxin is listed as D, and you indicate:

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4

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"The position of the displacement on the standard curve was little affected by 4 to 5 fold increase in incubation time."

7

Now can you briefly explain for us, Doctor, what you meant by that?

8

9

10

11

12

A. Yes. The binding of the digoxin onto an antibody, or the binding of some totally extraneous material may show a different time characteristic. It may take longer for the extraneous material to bind than digoxin takes to bind.

13

14

15

16

So if you increased the incubation time, as I did here, four to five times longer, and if I had got a totally different result, then it might have suggested again that this material was not digoxin.

17

18

Q. And that again was not the case here?

19

20

21

22

23

24

25

A.

Yes.

Q.

Doctor, with respect to the assays that you had done over these three days on these three specimens, the stomach, lung and bowel specimens, were you of the view that from a technical point of view these results were reliable, having







CC.16

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regard to the methodology that you had used? Or did  
you know?

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A. I had done some very preliminary  
investigations. Those preliminary investigations had  
shown that this material displaced digoxin - labelled  
digoxin in the radioimmunoassay. I had attempted  
various experiments to disprove that this material was  
digoxin as listed here, and failed to disprove that  
it was. Sorry, or failed to ...

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Q. You had not been able to  
prove it was not digoxin?

A. I hadn't been able to  
prove that it wasn't, no.

Q. May I take it, therefore,  
that you concluded that it was?

A. That it could well be,  
yes. All the evidence that I had pointed in that  
direction.

Q. Doctor, I take it, at the  
time you were doing these assays, you were aware of  
the fact that Justin Cook had not received digoxin  
while at The Hospital for Sick Children?

A. Yes.

Q. And I take it, doctor,  
we can then agree that whatever the actual numbers  
are for these levels, the fact that you were  
recording material that behaved in a way like  
digoxin was a surprising result, given that the  
child was not known to have received digoxin?

A. I wouldn't say "surprising",  
because we had analyzed serum samples prior to this  
and we had seen very high results.

Q. Did these findings then,  
doctor, whatever the exact numbers might have been,





1  
DD2 2 did these findings then, in your mind, corroborate  
3 the earlier findings that had been the result of the  
4 assay done on the serum sample?

5 A. Yes.

6 Q. Doctor, if we turn to  
7 page 175 of your Digoxin Kit Book - and I don't  
8 intend to go through these with you, doctor, but  
9 you see there a series of detailed calculations  
10 dated March 25, 1981. Are these the detailed  
11 calculations and results which are recorded in a  
12 summary way on page 170 that you just looked at,  
13 the results of the assays that you did on March 25th?

14 A. Yes, they are.

15 Q. Could we turn to page  
16 172 and 173 and, once again, we see a series of  
17 detailed calculations, this time both dated March  
18 26, 1981. Once again, are these the calculations  
19 in a detailed fashion that are recorded in a summary  
20 way on page 170 of your book?

21 A. Yes, they are.

22 Q. Doctor, could you turn  
23 now, if you would, to page 177 of your Digoxin Kit  
24 Book.

25 Do you have that, doctor?

A. 177?





DD3

1

2

Q. Yes.

3

A. Yes.

4

Q. Doctor, we see there the

5

initial note at the top of the page is indicating

6

that a preliminary report about the findings on page

7

35 of the other book were communicated to Sgt. Press

8

at 9:15 p.m. on the 24th of March, and then you

9

have a further analysis of fluid samples, and those  
notes appear to be dated March 25th.

10

Doctor, did these notes, together

11

with those which appear on the preceding page -- I'm

12

sorry, the preceding page, 176, have to do with the

13

various steps that you undertook in conducting these

14

assays on the 25th of March on those specimens from  
Justin Cook?

15

A. Yes.

16

Q. And the first that you

17

describe in your notes has to do with the separation

18

process, the charcoal removal of digoxin?

19

A. I'm sorry, what page is  
this?

20

Q. Page 177.

21

A. Yes.

22

Q. The first step, "Charcoal

23

removal of digoxin".

24

25







DD4

1

2

A. Yes.

3

Q. You have made notes there

4

describing what you did and what applied to the

5

separation technique that you used on these assays.

6

A. Yes.

7

Q. Did you do anything

8

differently, doctor, with respect to the separation  
process on these assays than you would in the

9

conduct of a normal digoxin assay on a serum sample?

10

A. No. After this procedure

11

was gone through, the original material that I

12

started with and the charcoal-treated material were

13

assayed, taking 50 microlitres of each, as usual;

14

in other words, in the usual radioimmunoassay, which

15

included a charcoal separation stage right at the  
end.

16

Q. So, I take it then that

17

there was nothing with respect to the separation

18

process that was different for these assays than

19

would have applied had a normal RIA digoxin assay

20

been done on the serum sample?

21

A. Yes.

22

Q. Is that right?

23

A. Yes.

24

Q. And the second step you

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outlined has to do with "heat inactivation", and that is the description, doctor, of what you did with respect to each specimen by way of heating it, and you described how you heated it at a number of various dilutions.

Am I correct in my understanding that heat activation; that is, heating of a specimen at all in the course of an RIA digoxin assay, is something out of the ordinary?

A. Yes.

Q. You would not normally do that?

A. That is correct.

Q. And from your evidence a few moments ago, as I understand it, you can't help us as to why, in this case, you heated the sample?

A. No, but I can help you as to why I heated these samples.

Q. All right. I am sorry.

A. As I indicated before --

Q. Yes, all right.

A. -- this was in a possible attempt to denature any protein-digesting enzymes that might be present in the bowel sample.





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Q. We see, however, that the heating appears to have applied to the stomach contents specimen as well as the chest fluids specimen in addition to the bowel specimen.

A. Yes.

Q. Is there any particular reason that you heated the stomach specimen as well as the chest specimen?

A. Well, the stomach can also contain enzymes that will digest proteins.

When you do an experiment, you very often try to do something along with it as a kind of control or a check to see what is happening. So, my guess would be that I did the same to everything but I was particularly interested in the bowel.

Q. Doctor, if we turn over to page 176 --

A. Perhaps I could point out that this is my Digoxin Kit Book and there is a lot of information in the first part that relates to digoxin kits.

When I picked this book up, I wanted to put it in a fairly secure place and I started at the back of the book and worked forward,





1

2

and that is why it appears a little bit illogical  
in this exhibit.

3

4

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6

Q. Doctor, at page 176, Item  
No. 3, we see there a description of the various  
dilutions which you undertook with respect to these  
samples on March 25th.

7

8

9

A. Mm-hmm.

10

11

12

13

14

Q. I'm sorry, doctor, the  
reporter can't hear you. Is that correct?

15

16

17

18

19

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A. Yes.

Q. And Item No. 4, doctor,  
as I read it, has to do with the timing for  
incubation of the various samples that you applied  
on March 25th.

Can you tell me with respect to  
the time that you allowed for incubation of these  
three different specimens, did you do anything  
differently than you would have done in a normal  
digoxin RIA assay in your lab on a serum specimen?

A. In respect of Item 4 on  
page 176?

Q. Yes, doctor.

A. There is a possibility  
that the actual standard curve may be affected by  
a prolonged incubation and, so, I set up, I think,







1

2

a partial standard curve to check on that particular aspect.

3

4

5

6

Q. And was the incubation period that you used on March 25th on these specimens longer than the incubation period you normally would have used?

7

8

A. Yes. This was four to five times as long.

9

10

Q. What is the normal length of time, doctor?

11

A. Thirty minutes.

12

Q. I'm sorry?

13

A. Thirty minutes.

14

Q. So, this was approximately two to two and-a-half hours?

15

A. Yes.

16

17

Q. And you did that, doctor, for the purposes of ensuring that there was no deviation from the curve?

18

19

I'm sorry, could you explain to me again why you did that?

20

21

22

23

24

25

A. To see whether the material that was immunoassayable was behaving differently from digoxin in respect of the rate at which it binds or the kinetics of the displacement





1  
2 process.

3 Q. And I take it that that  
4 has to do, that particular facet of what you did  
5 with these specimens, doctor, has to do with the  
6 factors that you listed on page 170 indicating that,  
7 as a result of your experiments, there was no  
8 displacement of this material on the standard curve  
9 despite the fact that you had increased the incubation  
10 time by four to five times the normal amount?

11 A. There was no...?

12 Q. There was no deviation,  
13 you have indicated, or displacement on the standard  
14 curve, notwithstanding that you had increased the  
15 period or the length of time of the incubation  
16 stage four to five times over normal?

17 A. The relative position on  
18 the standard curve was approximately similar and  
19 not grossly different.

20 Q. And, doctor, do all of  
21 those four steps that we have just reviewed as set  
22 out on pages 176 and 177 apply only to the assays  
23 which you conducted on March 25th?

24 A. I'm sorry, which page is  
25 that?

Q. I'm sorry, doctor, pages  
176 and 177, the four steps we have just looked at.





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A. Yes, the four steps we have looked at.

Q. Do they apply only to the assays that were conducted by you on March 25th as opposed to the ones done on the 24th of March and the ones done on the 26th of March?

A. Well, the heating at 100° -- yes, they were on the 25th of March, right. Yes, this was the 25th of March, yes.

Q. So, those particular steps were not undertaken by you in that fashion on the 24th of March?

A. No.

Q. Nor do they appear to have been on the 26th?

A. No. On the 26th, I was more concerned with dilution.

Q. Doctor, there are two or three short matters --

I expect to be finished in five minutes, Mr. Commissioner. Can I continue at this stage?

THE COMMISSIONER: Yes.

MS. CRONK: Q. Doctor, I would ask you to turn to page 37, if you would, of Tab 45.





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A. Yes.

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Q. The right-hand side of the page that we were looking at -- I'm sorry, it is not numbered as 37 - it is right beside the results on the Cook tissue tests.

A. Oh, I am sorry.

Q. It is right here, Tab 45, doctor, if you would, the second-to-last page.

A. Yes.

Q. We see there your results that we have reviewed of the tests conducted on March 24th.

A. Yes.

Q. And on the right-hand side of the page, doctor, there appears a note, which reads:

"Dr. R. D. Rowe, Head of Cardiology,  
Hospital for Sick Children:

I am taking results of  
digoxin levels on Cook, Miller,  
Pacsai, Estrella..."

and there are dates there and there appears to be the signature of Dr. Rowe.

Do you know, Dr. Ellis, whether or not Dr. Rowe attended at the laboratory and







1  
2 obtained particulars with respect to the results  
3 of those various digoxin assays on the 23rd of March?

4 A. It is my understanding that  
5 he did attend.

6 THE COMMISSIONER: The 22nd.

7 MS. CRONK: I'm sorry, the 22nd.

8 A. That he did attend the  
9 laboratory on the 22nd, which is a Sunday?

10 Q. That's right.

11 Did you personally speak to Dr.  
12 Rowe at the time?

13 A. No. No. The only  
14 reason that I have for believing that he did  
15 attend at that particular time is that, when I got  
16 into the lab on Monday and Tuesday, various bits  
17 of paper were handed over to me, of which this was  
18 one, and the technologist who was there on that  
19 occasion said that this person that they didn't know  
20 had been in and had looked at some results, and he  
21 had left a note to say that he had been.

22 THE COMMISSIONER: Can I see the  
23 original, Miss Cronk, please.

24 MS. CRONK: Yes.

25 Q. To help you, Dr. Ellis,  
that note is attached by adhesive tape to the last





1  
2 page of the digoxin book, following the entries  
3 of March 24th.

4 A. Yes, I realize that.

5 Q. I take it that you had  
6 no personal discussion with Dr. Rowe on that day?

7 A. At that particular time,  
8 no.

9 Q. You told us you were not  
10 in the Hospital on Sunday, the 22nd of March.

11 A. No.

12 Q. Doctor, could you as well  
13 turn over to the next page, please, the same tab.

14 Can you tell me whose handwriting  
15 these notes appear to be, doctor? Do you recognize  
16 the handwriting?

17 A. This is actually my  
18 writing.

19 Q. Doctor, we see at the  
20 top of the page on the left-hand side a reference  
21 to "post mortem samples" and, then, "Dr. Freedom",  
22 underneath that, "Stat dig.", and then a number of  
23 arrows and entries indicating, "head and neck, kid  
24 on dig. at time of death. Valve operation..."

25 Is that "valve open" or "valve  
operation"?





1

2

A. Yes, "valve operation".

3

Q. "Valve operation". And

4

then various other entries; a reference to Mr.

5

Barbour, a reference to dig. and stomach contents;

6

a reference to Mr. Snedden; a reference to Staff

7

Sgt. Press.

8

Can you help us, doctor, as to  
what these notes refer to?

9

A. I think this is a rough

10

sheet of paper on which I wrote various bits of

11

information in relation to one or two conversations

12

that I had with people, and I would be putting

13

together what my interpretation of this piece of

14

paper rather than my direct memory.

15

Q. Well, with respect, for

16

example, Dr. Ellis, to the reference of "post  
mortem samples" --

17

A. Yes.

18

Q. -- and beside that the

19

reference to "Dr. Freedom", do you, today, recall

20

having had any discussions with Dr. Freedom concerning

21

the post mortem samples that were forwarded to your

22

lab for assay purposes, be it on Estrella, be it

23

on Pacsai, Miller or Cook?

24

A. No, I don't think so.

25





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Q. Can you help us today as to what that reference to Dr. Freedom refers to, or do you recall?

—







EE  
BB/cr

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2

Q. All right.

3

A. Mr. Barbour's name, which I would suggest is Sergeant Barbour spelled B-a-r-b-o-u-r, is that right?

5

6

Q. I am not sure of the correct spelling.

7

A. As on the sheet of paper that I had before.

9

10

Q. That is a reference to Sergeant Barbour?

11

12

13

14

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17

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A. I would interpret this sheet of paper to be that. I would interpret this piece of paper as being the piece of paper on which I wrote Sergeant Press' number, or a number at which I could contact him, on the occasion when the samples were delivered to me by Sergeant Barbour, and Mr. Snedden at 7:00 p.m., I didn't have any meetings with Mr. Snedden at around this time at 7:00 p.m. and if you are asking me again to guess ---

19

Q. I am not asking you to guess, Doctor.

20

21

A. Okay.

22

Q. Do you recall what the entries on the page mean, or what they referred to?

23

24

25

A. No, but I did phone Sergeant





1  
2 Press at around 9 o'clock and if he was having a  
3 meeting with Mr. Snedden at 7:00 p.m. that might fit  
4 in, but I don't know, I am sorry.

2  
5 Q. Doctor, there is a reference  
6 at the middle of the page to digoxin in stomach  
7 contents. With the exception of Justin Cook, did  
8 you perform digoxin assays on any gastric or stomach  
9 content specimens from any children during the time  
period that we are concerned with?

10 A. No.

11 Q. That reference then appears to  
12 refer to Justin Cook, do you agree with that?

13 A. You're guessing now.

14 Q. All right.

15 A. I'm sorry.

16 Q. Fair enough, Doctor.

17 A. Okay.

18 Q. Finally, Doctor, I am showing  
19 to you a two-page list of names of various patients,  
20 the date of death which appears beside it and then  
21 an identification number. At the bottom of the page  
22 there is a place for the indication of who the list  
23 was reviewed by and then the indication of the  
24 Biochemistry Department. I would ask if you have  
25 ever seen this list before?





1

2

A. Yes, I have.

3

4

Q. All right. Can you tell me, Doctor, what you understood the list to represent?

5

6

A. The list is a list of names of patients that I learned the police were interested in during the course of the preliminary hearing.

7

8

Q. All right, not until January of 1982?

9

10

A. Yes.

11

12

Q. All right. Perhaps then, Mr. Commissioner, because it clearly relates to that time frame I won't pursue the matter further at this stage.

13

THE COMMISSIONER: Well, except, once again, we don't want to have to bring Dr. Ellis back.

14

15

16

17

18

MS. CRONK: Well, it is my understanding in discussions with various other counsel that regretablely that may be necessary. I am in your hands, sir. I wouldn't have thought it appropriate at this stage to explore what the list was intended, what purpose it was intended to serve.

19

20

21

THE COMMISSIONER: Surely no one objects if it is merely identified as something the police gave you, is that right?

22

23

THE WITNESS: Yes.

24

25

MS. CRONK: All right, Doctor. Was





1

2

it given to you personally?

3

A. Yes.

4

Q. All right. And that was in  
January 1982?

5

A. Yes.

6

7

Q. What did you understand you  
were to do with the list?

4

8

9

10

11

12

13

14

A. Basically the police would  
like to know if there is any tissue or blood stored  
in the Hospital for Sick Children on all the patients  
listed here. The number on the right is history number,  
the number on the left, the date may be the admission  
number - I am sorry, the admission date or the time  
in which they are in the Hospital.

15

16

17

18

19

Q. All right. Were you being  
requested, Doctor, to identify whether or not there  
were any remaining tissue specimens or blood specimens  
in the Hospital anywhere, anywhere in the Hospital for  
Sick Children which might be available for further  
testing on any of these children?

20

21

22

A. Yes. I think this list was  
actually given to not only us but microbiology and  
all the departments that might possibly have some  
samples, virology and so on.

23

24

25

MS. CRONK: Mr. Commissioner, my five







1  
2 minutes has turned into ten, may we take our break  
3 now?

4 THE COMMISSIONER: Yes. Are you  
5 finished though?

6 MS. CRONK: No, I am going to be  
7 about another five minutes, sir.

8 THE COMMISSIONER: Oh, all right.

9 MS. CRONK: Was that marked, sir?

10 MR. TOBIAS: Was this marked as an  
11 exhibit?

12 THE COMMISSIONER: Well, I think it  
13 should be an exhibit. What number are we at?

14 THE REGISTRAR: 212.

15 THE COMMISSIONER: 212.

16 ---EXHIBIT NO. 212: List of patients given to Dr.  
17 Ellis by the police.

18 THE COMMISSIONER: I would just like  
19 to - well, I don't know, I think I have made it clear  
20 that I will expect in the first phase to have all  
21 the evidence of the cause of death and I don't want  
22 anyone to be counting on getting any of that evidence  
23 at any rate at some later time after the first phase  
24 is over because I intend to have argument on the  
25 cause of death at the end of the first phase and in  
all probability several persons interested will cease





6 1  
2 to be interested at that point.

3 MR. BROWN: Mr. Commissioner, I agree  
4 with you on that, certainly all the information ---

5 THE COMMISSIONER: You will remain  
6 interested if that is what your concern is.

7 MR. BROWN: No, that wasn't my intention.  
8 My only intention in rising was that certainly  
9 information as to the results of tests could cast  
10 light on the cause of death. My only concern would  
11 be is that after Justin Cook's death March 22nd, you  
12 are into a period where a number of the matters do  
13 relate to the subsequent investigation.

14 THE COMMISSIONER: Quite right.

15 MR. BROWN: Now, the information that  
16 solely relates to results and their meaning, I agree  
17 with you is relevant to the first phase.

18 THE COMMISSIONER: Yes.

19 MR. BROWN: However, the circumstances  
20 surrounding as to why they came into being, what the  
21 reactions are I think are properly within the ambit of  
22 the second phase and not of the first.

23 THE COMMISSIONER: I agree.

24 MR. BROWN: And that's the only comment  
25 I would like to make.

THE COMMISSIONER: The only real reason,





7 1  
2 it is clear that this one was well in the second phase  
3 and the only reason I mentioned it was that if  
4 everybody is casually saying that Dr. Ellis will have  
5 to come back, before I agree that he has to come back,  
6 somebody is going to have to tell me that there is  
7 something he can tell us in the second phase more than  
8 the fact that he got this. I don't know, there may  
9 well have been some testing done at the time, it may  
10 well be that he will have to come back.

11 It is not for entirely selfish reasons,  
12 that is, not entirely to your benefit, but it is partly  
13 for your benefit because I would like to avoid having  
14 you to come back and if it can be done we will do  
15 it and if we can't we won't.

16 Now, as long as Miss Symes is going  
17 to be able to get to her much more important appoint-  
18 ment on Monday, how long are you going to be, Mr.  
19 Roland?

20 MR. ROLAND: I shouldn't be too long.  
21 I have the same problem on Monday.

22 THE COMMISSIONER: Well, maybe we can  
23 get rid of both of you and that will be fine and if  
24 Mr. Ortved is around we might get rid of him too.

25 Have you a problem on Monday?

MR. OLAH: I have a problem on Monday





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2

too, Mr. Commissioner, but I would hope to be back  
and perhaps you could accommodate me Monday to work  
around my problems, I would be grateful.

3

4

5

THE COMMISSIONER: Yes, because I think  
we may not even finish Monday, there is always that  
danger.

6

7

Well, all right, let's take 15 minutes  
then.

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10

---Short recess.

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EE/BB/ak

1  
2 ---Upon resuming.

3 THE COMMISSIONER: Yes, Ms. Cronk.

4 MS. CRONK: Q. Doctor, two or three  
5 final questions with respect to this list that has  
6 been marked as Exhibit 212. Do you recall now which  
7 officer from the Metropolitan Toronto Police provided  
8 this list to you?

9 A. The new list?

10 Q. The new list.

11 A. I'm not quite sure. It may  
12 have been Constable Murray.

13 Q. I'm sorry, I didn't hear you.

14 A. It may have been Constable  
15 Murray, but I'm not sure.

16 Q. But you're not sure?

17 A. No. It may have been Hulcoup  
18 as well.

19 Q. I'm sorry?

20 A. It may have been Hulcoup as  
21 well.

22 Q. All right. Doctor, as a result  
23 of being provided with this list and as a result of  
24 the request that it be determined if there were  
25 any further tissue or blood specimens stored at the  
Hospital, did you subsequently provide to the officers





E2 1  
2 from the Metropolitan Toronto Police any further  
3 specimens, be it tissue, body fluid or blood specimens  
4 from any of the children on this list?

5 A. I don't think there were any  
6 materials available. It is rather a long time since  
7 those samples were collected and since those children  
8 were in the Hospital I don't think there were any  
9 samples available after receiving that list.

10 Q. All right. You certainly don't  
11 recall personally having had any available which  
12 you then provided?

13 A. No.

14 Q. All right. Doctor, could we  
15 return to the earlier list of specimens, Exhibit 211,  
16 the list of specimens which had been provided to you  
17 by Sergeant Barbour on March 24, 1981. Do you recall  
18 that list?

19 A. Oh, this one?

20 Q. Yes.

21 A. Yes, okay.

22 Q. Do you recall, Doctor, that  
23 I asked you earlier in the day when those specimens  
24 were returned to representatives of the Metropolitan  
25 Toronto Police and you indicated that you would look  
at your notes to determine whether or not that





1  
2 information is available to you? Have you been able  
3 to determine when those specimens were returned?

4 A. Yes, I think this was around  
5 the 27th of March.

6 Q. All right.

7 A. Would that be either the  
8 Thursday or Friday of the week after?

9 Q. Yes, it would, Doctor.

10 A. Yes.

11 Q. And similarly you will recall  
12 that I asked you when the specimens concerning Jordan  
13 Hines and Kevin Pacsai had been turned over to the  
14 Metropolitan Toronto Police and asked you if that  
15 information upon your reviewing your notes was  
16 available to you. Have you been able to determine  
17 when those specimens were returned?

18 A. Yes.

19 Q. I'm sorry, returned, when they  
20 were provided to representatives of the Metropolitan  
21 Toronto Police?

22 A. In relation to this list that  
23 you provided me with, that I provided you with  
24 originally, there are materials here from Kevin Pacsai,  
25 heart and lungs, about half way down the page  
IC51014 and also Hines, Jordan, heart, IC51022. So,





1  
2  
3 in respect of some samples on Hines and Pacsai, they  
4 had been delivered to me in March of 1981 and had  
5 been returned to the police after I had done those  
6 experiments that I have just described on some of  
those samples. That represents the list here.

7 Q. All right. May I stop you  
8 just there, Doctor, so that I understand?

9 A. Okay. This list is the list  
10 returned at that particular date, the 27th of March.

11 Q. All right. And that included  
specimens from Kevin Pacsai and Jordan Hines?

12 A. Yes.

13 Q. All right. Now, Doctor, I  
14 was then referring to the virology specimens.

15 A. Yes.

16 Q. On Kevin Pacsai and Jordan Hines  
17 which you did not receive from the Metropolitan  
18 Toronto Police but rather from the Virology Department  
at the Hospital?

19 A. Yes.

20 Q. And which you had in fact  
21 assayed on the 20th of March. I had understood you  
22 this morning to say that at some point those specimens  
23 as well were turned over to the Metropolitan Toronto  
24 Police.  
25







5

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2

A. Yes.

3

Q. Do you now know when that was  
4 done?

4

5

A. Those samples I think were  
6 handed over in January at or around the 20th or  
7 within a few days of the 20th of January, 1982.

6

7

8

Q. Do you recall, Doctor, whether  
9 or not they were turned over to the police after you  
10 had been provided with Exhibit 212, that is, the  
11 list on which the request was made that you searched  
12 for tissues and blood specimens?

10

11

12

A. No, I think that this long list  
13 that I have shown you came after I had handed over  
14 those materials, within a few days of that.

13

14

15

Q. All right.

16

A. Yes.

17

Q. Thank you, Doctor, I have  
18 no further questions.

18

A. Can I add one point?

19

Q. Yes, Doctor.

20

A. In that the materials listed  
21 here represented relatively large amounts of  
22 material in many cases.

21

22

23

Q. You are referring now to the  
24 specimens listed on Exhibit 211?

24

25





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A. Yes.

3

Q. Okay.

4

A. So, Sergeant Barbour brought me

5

large amounts of material and it is my recollection

6

that I had offered at some stage, and I think it is

7

when he came to pick these samples up, the samples

8

that I had obtained from virology, the samples that

9

I had obtained from virology were relatively minute

10

amounts of material. They were contained in very

11

small bottles like this, whereas, he had brought in

12

boxes of material. My impression is that at that

13

particular time he indicated that he did not wish

14

to take them simply because he was taking, if you

15

like, better materials or much more material already

on those, so, why take something else.

16

It was my impression also that he, you

17

know, if they required them they would come back for

18

them at some future date.

19

Q. And that then in fact happened

in January of 1982.

20

A. In January of '82, yes. I

21

was asked by Constable Murray whether there were

22

any other samples at all that we had and I recollected

23

these samples. I had a vague recollection of these

24

samples and went to the freezer and found these

25





1  
2  
3 samples in the freezer.

4 Q. And turned them over at that  
5 time?

6 A. Yes.

7 MS. CRONK: Thank you, Doctor. I  
8 have no further questions, sir.

9 THE COMMISSIONER: Thank you.  
10 Mr. Roland?

11 EXAMINATION BY MR. ROLAND:

12 Q. Dr. Ellis, as I understand it,  
13 the RIA analysis is done for the purpose of providing  
14 clinicians with information to assist them in the  
15 administration of digoxin, is that right?

16 A. Yes.

17 Q. Yes. And that what you are  
18 doing when you are analyzing serum samples for  
19 digoxin is, you are measuring the amount of drug  
20 that has been administered?

21 A. Yes. Not the amount but the  
22 level achieved.

23 Q. The level achieved by the  
24 administration of the drug?

25 A. Yes.

Q. Yes. You are not trying to  
detect any kind of medical condition in the child from





whom the serum sample has been taken.

A. Not a medical condition, no.

Q. If what you detect in the serum gives you a low reading, I take it that is information that goes to the clinicians to assist them in deciding how much is to be administered on the next dose?

A. Yes.

Q. And the doses may be adjusted according to, among other things, the information that they receive from biochemistry as to the serum level?

A. Yes.

Q. So that the exercise in assisting the clinicians isn't simply whether they stop the administration of digoxin or continue the administration of digoxin, it is more refined than that, it may assist them also in determining how much they are to administer to the child?

A. Yes.

Q. I see. It is for those reasons that telephone calls are made from your lab to the wards in order to assist the clinicians in the administration of the drug?

A. Yes.







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Q. And all that is in the treatment of patients. Is that right?

A. Yes.

Q. So that until these events I take it you had no experience in the analysis of post-mortem dig. samples?

A. With the exception of the sample that I have alluded to before which had gone through unnoticed essentially.

Q. Yes. That was an accident, wasn't it?

A. Yes.

Q. That wasn't something that was done by design?

A. Well, the fact that it had gone through unnoticed was, if you like, an accident.

Q. Yes. Exactly. You weren't intending to --

A. No.

Q. -- to analyze the postmortem sample?

A. No. That was not the purpose the assay was set up.

Q. All right. And I take it during this period of time you weren't familiar with any





FF.2

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results from postmortem dig. analyses? You weren't familiar with what was to be expected from a postmortem dig. analysis?

4

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A. Do you mean during the Estrella-Pacsai kind of time?

6

7

Q. Yes. That is right. During that period of time?

8

9

A. No, I wasn't.

10

11

Q. I gather you assumed at that time that although you had no experience you assumed that the postmortem results were to be regarded in the same way as premortem results?

12

13

A. I had no reason to think otherwise.

14

15

Q. But you had no experience with it one way or the other?

16

17

A. Correct.

18

19

20

21

Q. And I gather you had no experience or knowledge about - apart from your assumption that you might be able to interpret the postmortem results like the premortem results - you had no other knowledge or experience or expertise in interpreting postmortem results?

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A. No.

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Q. And I gather during this time,





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especially during the time of the Estrella sample, you left it to the clinicians, the doctors, to give whatever interpretation they thought appropriate to that result?

A. Yes. A child had died. The definitive examination to determine cause of death is an autopsy, and I was aware that an autopsy had been done.

Q. Yes. But you didn't interpret the result yourself; you left it for them to interpret I take it?

A. I jumped to a conclusion about that result which turned out to be - which turned out to have been a wrong conclusion.

THE COMMISSIONER: Jumped to a conclusion about which result?

THE WITNESS: About the Estrella result in that I had jumped to the conclusion that it was - that this very high result was due to administration of the drug very, very close to the time of death.

THE COMMISSIONER: Yes.

THE WITNESS: The therapeutic administration.

MR. ROLAND: Yes.





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Q But I take it from your earlier evidence that you said you simply provided that result to the clinicians treating the patient?

A. Well --

Q Who had been treating the patient, Dr. Costigan?

A. In relation to Pacsai?

Q. Yes.

A. Yes.

Q And so you provided to Dr. Taylor, as far as Estrella was concerned you provided that to Dr. Taylor?

A. That report went to the Pathology Department, yes.

Q And I gather you left it for them to give whatever interpretation they thought appropriate to that result?

A. Yes. They were performing the autopsy. I don't know what the autopsy had shown.

Q And at that time and I think in your evidence you said as I recall it that you had a general impression that the sample was compromised in some fashion?

A. Yes.

Q Did you mean by that that the







FF.5

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result was one that couldn't be relied upon?

3

A. There was a notation in our

4

digoxin book "possibly diluted specimen".

5

Q. Yes.

6

A. So I - as I indicated, you know,

7

the fact that this material - we had some reason to

8

believe that the material was not a good sample, and

9

we placed possibly less emphasis on it than we would  
have done if somebody had said this sample was a good

10

sample.

11

Q. And if there were more emphasis

12

to be placed on it I gather you expected to hear back  
from somebody?

13

A. If there was more emphasis --

14

Q. Yes.

15

A. Yes. In respect of Estrella?

16

Q. Yes.

17

A. Yes.

18

Q. Now dealing with events

19

surrounding your dealing with Dr. Costigan and the

20

results from the analysis of serum levels for Baby

21

Pacsai, you have told us that you had various

22

conversations with Dr. Costigan in the week following

23

the death of Baby Pacsai.

24

A. Yes.

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Q. And throughout these conversations and right up to the Friday, March the 20th, was there any suggestion by Dr. Costigan that he thought there was any foul play?

A. My recollection is that I had not considered foul play, and my recollection is that I don't think anybody had suggested that possibility to me until the following Monday. Now what they were thinking, I don't know.

Q. Do I take it Dr. Tepperman didn't suggest that to you either on the Friday when you met with him?

A. No, but he is a coroner so, you know, a coroner's way of thinking is a little bit different than a hospital biochemist's way of thinking.

Q. All I am asking is if he suggested it to you or not?

A. I don't recall him suggesting it, no, because I think I would have remembered it. I just remembered the astonishment that I felt when I had heard of the events of the weekend on the following Monday, and contrasted that with my previous thoughts on the previous Friday.

Q. Let me ask you about the sample that went over to Mount Sinai in the Estrella case -





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sorry, in the Pacsai case.

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A. Yes.

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Q. Yes. And when you got the result back from Mount Sinai did it satisfy you as far as the idiosyncratic possibilities were concerned?

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A. Yes.

12

Q. How were you satisfied?

13

14

A. I was satisfied that it was not a low result and the high result was high.

15

16

Q. Yes. Did that satisfy you as far as the purpose, your purpose in sending it over in the first place?

17

A. Yes.

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Q. Dealing with the Virology samples on Baby Hines, Pacsai and Whitehead that appear at Tab 45, page 28, and those specimens, you told us that you didn't really know why you had received or why you took the Virology specimens for Hines and Whitehead, and you thought maybe there were two reasons, one or both of two reasons that first





FF.8

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you needed a control to analyze the Pacsai sample  
and secondly someone may have said something to you?

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4

A. Yes.

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Q. Now if you are using a control  
would you want samples of tissue from babies who were  
thought not to be on digoxin? Was that the kind of  
control?

8

9

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A. Yes. Yes, you would, and you  
would also want them ideally around the same sort of  
age.

11

Q. Yes.

12

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A. And you would want them  
comparable in the sense of their clinical condition,  
if possible.

14

15

16

Q. I take it you wouldn't want  
samples of other babies that were known to be on  
digoxin or had been on digoxin?

17

A. You wouldn't want --

18

Q. Not as controls?

19

A. You wouldn't want samples from  
85 year old males. Okay.

20

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Q. Yes.

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A. In other words you want them  
as similar as possible.

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Q. I understand that. But let's

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set those other similarities aside for a moment and let's deal with the issue of digoxin. Would you want control samples from infants that were on digoxin or known to have been on digoxin or samples from infants who it was thought had not been on digoxin?

A. It would be helpful to have a mix.

Q. I see. And how would it help you to have samples from babies who had been thought to be on digoxin?

A. Sorry?

Q. How would it help you as a control to have samples from a child who had been on digoxin? How would that help you as a control?

A. Well, because we were concerned with the Pacsai sample and the child had been on digoxin. Okay?

Q. Yes.

A. That would help us in that it is not just an isolated observation on Child A.

Q. Yes.

A. But also on Child B who had been on digoxin.

Q. Right.

A. Has a particular level or





FF.10

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perhaps Child C who has not been on digoxin and has  
a different level.

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Q. All right. You have gone through  
in great detail all of the results that you obtained  
analyzing body fluids and tissues and bowel contents  
and gastric content and lung contents. You have been  
through that in great detail and you have given us  
the full range of the results from all of those  
analyses with respect to both Baby Cook and Baby Pacsai  
and so on.

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Having obtained those results as you  
have as varied as they are, I take it you don't  
measure those against - in terms of deciding what  
value is to be put to them or what interpretation is  
to be made. You don't measure those against thera-  
peutic range for digoxin serum?

16

17

A. In relation to the tissue  
samples you mean specifically?

18

19

20

21

Q. Yes.

A. Well, I don't even look at  
those results on the tissue samples because I just  
have no credence of the accuracy of the tissue samples  
done on those two days, as I indicated.

22

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24

25

Q. No, but what I am talking  
about is interpreting the results of digoxin found  
in things, parts of the body other than serum?





FF.11

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A. Yes. In relation to stomach  
contents and so on?

4

Q. And bowels and tissues and so on.

5

In interpreting those results that  
you have, you obtain certain numerical values, and  
in interpreting those results do you compare them to  
the known therapeutic range for digoxin in plasma,  
in serum?

9

A. I don't think I interpreted  
those results, had I?

11

Q. Would you do that? Is that  
something you could do as far as you are aware? Does  
it make sense - for instance, if you found as I think  
you have very high levels of digoxin in bowel contents  
of Baby Cook --

15

A. Yes.

16

Q. -- in interpreting that result  
is it valid to measure it against the known therapeutic  
range for digoxin in serum?

18

A. No.

19

Q. And do you know what to measure  
it against? Have you got any idea what to measure it  
against?

22

A. No. You should really measure  
it against contents from control samples, age matched  
and so on.

23

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FF.12

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Q. Yes.

3

A. Or you should look in the

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literature and see what the literature experience is  
in relation to gastric contents in conditions.

5

Q. All right.

6

A. If you are called upon to

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interpret them.

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Q. And you weren't called upon to

9

interpret them?

10

A. No.

11

Q. No?

12

A. Well, I am not quite sure whether

13

I was called upon to interpret them at the preliminary  
hearing or not. I don't think ... okay.

14

Q. I take it what we can't do is

15

assume that for instance there is a toxic level of

16

digoxin, for instance, in Baby Cook simply by looking

17

at the gastric or the bowel contents and the digoxin

18

level obtained on those and comparing them to what is

19

known as the therapeutic range in serum, 1 to 2.5?

20

A. No, but if we realize that this

21

child was not prescribed digoxin then any measurement  
at a very high dilution --

22

Q. I understand that, Doctor. That

23

is a different issue. That is whether or not there is

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digoxin, and I take it from your analysis of the various samples from the bowel and gastric contents and so on of Baby Cook you were satisfied that it was digoxin?

A. Yes, I was.

Q. But my point is that you can't from the measurements that you got from those various analyses, I take it you can't interpret those as in a toxic range or not?

A. No, not simply from the numbers there.

Q. No.

A. Both in relation to the intestine and gastric contents, no.

Q. All of the measures indeed apart from the serum results; isn't that so?

A. The serum, yes.

Q. Setting aside the serum you can't interpret any of the other results as to whether or not it is within - it is beyond a therapeutic range or not?

A. No. But what is the therapeutic range on a child who is not supposed to have ever received digoxin?

Q. Well, we have set that aside for a moment.





FF.14

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A. Okay. Sorry.

3

4

Q. There is no doubt - we have heard evidence that Baby Cook wasn't prescribed digoxin and you found what you thought was digoxin?

5

6

A. Right.

7

8

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Q. I am not talking about that. I am talking about what interpretation is to be given to the numbers; I take it you can't interpret those numbers?

10

A. No. No, I can't.

11

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Q. Now you have written in your dig. kit at page 170 in your conclusion that it was in your view the material is digoxin. That is the material you found in your analysis of the gastric, bowel and lung fluids from Justin Cook.





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And I take it at that stage in March 1981 you were fairly certain it was digoxin, as a result of your analysis?

A. Mm-mm.

Q. And you are expressing it appears with a fairly high level of certainty?

A. Okay. I was trying to prove by a series of experiments that this material was not digoxin.

Q. Yes.

A. And have failed to do so.

Q. So that you were fairly certain it was digoxin?

A. The evidence that I had at that time pointed in this direction, yes, that is why I wrote this first sentence.

Q. From what you have learned from March of 1981 to today, would you be as certain today as you were then that what you had found was digoxin?

A. No, I wouldn't be as certain now as I was then.

Q. Why is that?

A. Simply because I was not aware of any literature in relation to the so-called





1  
2 substance X at that time. In other words materials  
3 that are immunoassayably like digoxin which are not  
4 digoxin.

5 Q. Any other reasons?

6 A. I am sorry?

7 Q. Any other reasons for not  
8 being as certain apart from substance X?

9 A. No, I think, you know, the  
10 literature on substance X makes, throws a little bit  
11 of doubt on these results. You know, if one's  
12 assay procedure cannot separate the substance that  
13 resembles digoxin from digoxin itself then one is in  
14 a different situation than when one believes that  
15 the material assayed is digoxin.

16 Q. One last thing with respect  
17 to the test done on the serum from Baby Pacsai. You  
18 have told us that you got a very small amount, this  
19 was the amount that appears now to have been ante  
20 mortem, an antemortem sample, and you got a very  
21 small amount and because of the small volume of the  
22 sample you used only one tube instead of two tubes,  
23 you didn't run it in duplicate. Do you recall that  
24 evidence?

25 A. Yes.

Q. And I gather when you do run







1

2

these samples in duplicate, what you do is average  
the two tubes?

3

4

A. Yes.

5

6

Q. You average the results from  
each tube?

7

A. Yes.

8

9

Q. And that is the reading you  
have been providing us with and written in your dig.  
book?

10

A. That is right.

11

Q. It is the average of two tubes?

12

A. Yes.

13

14

Q. And from time to time I  
gather the results from the two tubes are not close  
enough that you feel comfortable in even averaging  
them and giving a result?

15

16

A. Yes.

17

18

Q. That happens from time to  
time?

19

20

A. From time to time, yes, not  
very often.

21

Q. And when that happens what  
you do is you rerun the test?

22

A. Yes.

23

24

Q. But you were not able to do

25





1  
2 that averaging, that check, with respect to the  
3 Pacsai results in the antemortem sample because you  
4 didn't have enough of it?

5 A. Correct.

6 MR. ROLAND: Thank you, those are  
7 all the questions I have.

8 THE COMMISSIONER: Yes, thank you.  
9 Now, Miss Symes, how long are you going to be?

10 MS. SYMES: I will be brief, Mr.  
11 Commissioner.

12 THE COMMISSIONER: Nonetheless let's  
13 have it.

14 MS. SYMES: Thank you very much, I  
15 will be as brief as possible.

16 CROSS-EXAMINATION BY MS. SYMES:

17 Q. Dr. Ellis, on Friday March  
18 20th, I understand you got the patient chart Estrella  
19 from medical records?

20 A. It was delivered to me on that  
21 date by my secretary. I had asked her early in the  
22 week to obtain it for me.

23 Q. And I gather that Dr. Mancer  
24 saw it in your office?

25 A. Very, very briefly.

Q. And I gather that you handed





1

2

it over to Dr. Tepperman the same day?

5

3

A. Yes.

4

Q. From the time that Dr. Mancer

5

saw it until you handed it over to Dr. Tepperman,

6

did it ever go out of your control?

7

A. Control ---

8

Q. You said it was sitting on your

desk?

9

A. I don't think so, I think I

10

locked it away.

11

Q. Did you, Dr. Ellis, remove

12

anything from that chart?

13

A. No.

14

Q. Did you alter anything in any

way?

15

A. I don't remember altering

16

anything in any way.

17

Q. I just wanted to make sure

18

that that chart was not touched from the time Dr.

19

Mancer saw it until it went to Dr. Tepperman?

20

A. I don't think so.

21

Q. I presume you can't see any

22

opportunity for either taking things out or altering  
the chart?

23

A. I don't know why I would wish

24

25





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to do that, but if you are now going to show me something with my signature to a particular point in time.

Q. No, no. I was just trying to make sure that nothing could have happened to that chart before it got in the hands of the coroner. Nothing could have happened to it at the Hospital for Sick Children?

THE COMMISSIONER: Nothing could have happened to it while it was in Dr. Ellis' control.

Q. Yes, exactly, exactly, from the time Dr. Mancer saw it.

A. I think I went to a lunch time meeting and I think that after that lunch time meeting the chart was sitting on my desk.

Q. Fine.

A. Okay, so it was not directly handed over.

Q. But Mancer saw you after lunch?

A. Yes, he did.

Q. I want to explore briefly about the multiplier effect that you have described in terms of dilution, that is when you dilute, and I'll take a simple example one in 10.

A. Yes.







1  
2 Q. And you get a reading on your  
3 RIA machine and you then multiply that reading by 10  
4 in order to get the result?

5 A. Yes.

6 Q. In a sample that gives you  
7 a reading from .5 to 4.7 what is the standard  
8 deviation in your method?

9 A. Between .5 and 4.7?

10 Q. Yes, that is without dilution,  
11 what is your standard deviation, what has been your  
12 experience?

13 THE COMMISSIONER: What do you mean by  
14 that, what do you mean by deviation, do you mean how  
15 much it can be out?

16 Q. A statistical measure, Mr.  
17 Commissioner, called the standard deviation and Dr.  
18 Ellis explained that within two standard deviations  
19 is 95 per cent chance of occurring, what is your  
20 standard deviation on digoxin assays?

21 A. I thought I had indicated this  
22 when I previously came here. The standard deviations  
23 were different depending on the control serum taken;  
24 three levels were routinely assayed. I could obtain  
25 that information for you but I can't give it to you  
off the top of my head.





1

2

Q. Is it less than .5?

3

A. A standard deviation less than

4

.5?

5

Q. Yes.

6

A. I certainly hope so.

7

Q. Is it in the neighbourhood

of .1 or .2?

8

A. I think it is in the neighbour-

9

hood of 0.2, yes.

10

Q. 0.2?

11

A. Yes, okay, 0.1 to 0.2, that

kind of order.

12

Q. .2. Now it is a very simple

13

point ---

14

A. Off the top of my head.

15

Q. In other words then if you

16

get a reading of 1.3.

17

A. Yes.

18

Q. You can say within 95 per cent

19

confidence that the true value is between 1.1 and  
1.5?

20

A. Yes.

21

Q. That is just what you have

22

told us, right?

23

A. Didn't you ask me what the

24

25





1

2

standard deviation was?

9

3

Q. Yes, you said it is .2.

4

A. Okay.

5

Q. So if you get a reading of  
digoxin of 1.3.

6

A. Yes.

7

8

Q. Then can you say with 95  
per cent confidence that the reading lies between  
1.1 and 1.5?

9

10

A. No you can only say that within  
67 per cent confidence.

11

12

Q. Oh yes, that is if it is .1.

13

A. Okay.

13

14

Q. If it is .2 then it is from  
.9 to 1.7, 0.9 to 1.7?

15

A. Yes.

16

17

Q. Dr. Ellis, my question is  
very simple, if you dilute one in 10, such that you  
have to multiply by 10.

18

A. Yes.

19

20

Q. And you get the result again  
that is 1.3.

21

A. Yes.

22

23

Q. That is the diluted sample  
result.

24

25





10

1

2

A. Yes.

3

Q. When you multiply by 10 the

4

answer is 13.

5

A. Okay.

6

Q. Fine.

7

A. Yes.

8

Q. The bottom level that could

9

have been in error on the diluted sample is still  
.9?

10

A. On those hypothetical numbers,

11

yes.

12

Q. Yes. So won't your confidence

then on your original sample move from 9 to 17?

13

A. Under those circumstances, yes,

14

if those figures are correct, but I could give you

15

absolute, you know, better figures if you wish.

16

Q. But for a simple person, the

17

problem is that a little bit of error and we all

18

agree .2 is a little bit of error, when you dilute

19

in 10 multiplies error by 10?

20

A. That is correct.

21

Q. And since we are coming to

22

obviously Pacsai and Cook, when you are diluting

23

100 or 200, or 500, your error also also magnifies

24

by that amount, that same amount?

25







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A. Yes. I don't recall any -  
oh yes, there was 500 times for Cook, yes, in the  
bowel content.

Q. Now, the books that you have  
given us with respect to your digoxin assays that you  
have obtained over a number of years at the Hospital  
which are in Tabs 45, 46 and 47, I think you fairly  
told us were done on living patients?

A. Yes.

Q. And if you look through those  
particular samples --- Pardon me, you told us that  
the therapeutic range was 0.5 to 2.5?

A. Yes.

Q. But when you go through Tabs  
45, 46 and 47 there appear to be digoxin levels all  
over the map; that is there are a number of times  
when the digoxin levels are greater than 4.7?

A. Yes.

Q. I mean I am not talking about  
one or two, but I am talking about 20 or 30 occasions  
where the digoxin levels are a way beyond the 2.5.

A. Yes.

Q. Do you agree with me that  
I have fairly read your results?

A. I have not read those particular





12 1 results myself, but that does not surprise me.

2 Q. So that when we are talking  
3 about these particular children we have been looking  
4 at, specifically the ones you have been dealing with,  
5 Estrella, Cook, Pacsai, et cetera, that have levels  
6 greater than 0.5 to 2.5 there are results that are  
7 much larger than that as well?

8 A. Oh yes.

9 Q. On living patients?

10 A. Yes.

11 Q. For example on Tab No. 46, on  
12 page 16, do you see Husbands turned out to be 7.8.  
13 I am sorry, it is at the bottom on page 27. 11. 1979.  
14 Husbands is Item G at the bottom of the page.

15 A. I am sorry, which page is this?

16 Q. Page 16.

17 A. Oh, 16.

18 Q. Page 16, Tab 46.

19 THE COMMISSIONER: Husbands?

20 Q. Husbands, I believe I am reading  
21 his name right, he is Item No. G, Mr. Commissioner.

22 THE COMMISSIONER: On the left-hand  
23 side?

24 MS. SYMES: On the left-hand side.

25 THE COMMISSIONER: Mine doesn't record





1

2

that.

3

MS. SYMES: G. Husbands 3.9 times 2

4

is 7.8.

5

THE COMMISSIONER: I will take your

6

word for it. It is not on mine, deliberately this

7

was, somebody got to this while it was in my control

8

and rubbed that out.

9

Q. I am reading that fairly

10

am I not, Dr. Ellis.

A. On page 16 on Tab 46?

11

Q. Yes.

12

A. Yes.

13

Q. Husbands is 7.8 and that

was on a living patient?

14

A. Is that 7.8, I can see greater

15

than 5.

16

THE COMMISSIONER: I think they got to

17

your copy too, Doctor.

18

THE WITNESS: Oh I see what you mean,

19

I am sorry.

20

Q. On the 27.11.79 Husbands 3.9

times 2 is 7.8.

21

A. 7.8, correct.

22

Q. And if we were to move to

23

page 20, take patient Rene she is, or he, or whatever,

24

25





1

2

it is a female, F at the top Rene on page 20 she is  
greater than 5, F, do you see where it is?

3

A. Yes.

4

Q. And then C on the next one

5

shows greater than 5?

6

A. Yes.

7

Q. And moving on to page 21

8

Rene is M, 4.3.

9

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13oct83  
HH  
BMcra

That's a different sample, I  
apologize. S. Rene girl of seven of that same  
sample.

THE COMMISSIONER: I think you  
have proved your point.

THE WITNESS: Yes.

MS. SYMES: Q. Now, so, you  
would agree with me then that there are throughout  
this book examples of living patients at HSC in  
which digoxin levels were greater than the thera-  
peutic level?

A. Oh, yes, yes.

Q. Now, one of the things  
that you had told Miss Cronk at page 766 and 767  
of your evidence yesterday is that you might have  
a high digoxin level if the sample had been taken  
shortly after the digoxin has been given.

A. Yes.

Q. Dr. Ellis, what is the  
highest reading that you can remember coming out  
of that sequence of events?

A. I can't remember any  
individual instance, any individual number.

Q. Have they in fact been  
very high, larger than 10?





1

2

A. Yes, yes.

3

Q. Okay.

4

A. In fact, I prepared a list, not over this particular period but subsequently if you recall, and that list was entered in evidence in the preliminary hearing. On looking through about one and-a-half books I had obtained a large number, fifteen or sixteen samples maybe, seventeen, was it, where the result was greater than 5.

5

6

7

8

9

10

11

12

Q. But, Dr. Ellis, then if in any of these children the digoxin levels had been taken shortly after an administration even of a therapeutic dose of digoxin --

13

14

A. Yes.

15

16

17

Q. -- it is possible then that we would have a level that is greater than 10 if the sample was taken very close to the administration?

18

A. Yes, it is highly likely.

19

20

Q. Okay. And what is the timeframe, that is, if you are within thirty minutes of the administration to the sample?

21

22

A. Within thirty minutes, you mean zero to thirty minutes?

23

24

Q. Yes.

25





HH3

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A. It would depend on the method of administration, whether it is intravenous or oral.

Q. If it were oral?

A. If it were oral. Can I not give you numbers, because this result is changing a lot, but can I refer you to one of the figures in the exhibit that has already been entered, the Annals of Internal Medicine, your exhibit about 16 or 17, I think, when I was here previously.

Q. Yes.

A. I'm sorry, it is the JAMA article, I think, if that is correct. It shows a graph of digoxin levels following administration either oral or intravenous. Do you want me to be more specific than that?

Q. No, I think that I remember vaguely that.

THE COMMISSIONER: The one that you produced?

THE WITNESS: Yes.

MS. SYMES: Q. That is the article that you produced?

A. It was one of the articles on the interpretation of serum values and there is





1  
2 a figure in one of those articles, I think it is  
3 the Journal of the American Medical Association  
4 around 1979 or so, which will give you the information  
5 you seek.

6 Q. Very basically, is my  
7 conclusion correct that if a child is given a  
8 therapeutic dose of digoxin and a sample is taken  
9 too soon --

10 A. Yes.

11 Q. -- you can get a result  
12 on your dig. levels that is greater than 10?

13 A. That is elevated, yes.

14 Q. And in fact even greater  
15 than 10?

16 A. In some instances greater  
17 than 10, yes.

18 Q. On Tab 45 - this is  
19 concerning Pacsai, page 23. This is the minute  
20 samples that you received from, I guess it was the  
21 CBC tube and you didn't have enough to do it in  
22 duplicate. You did one tube neat and you did one  
23 tube in dilution.

24 A. Which page was this?

25 Q. Page 23, Tab 45.

A. The ante mortem sample on







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24  
25

Pacsai?

Q. The ante mortem sample  
that I understand came from the CBC tube.

A. Yes. On the 13th of  
March?

Q. On the 13th of March.  
Dr. Ellis, you have explained I believe to Miss  
Cronk about 16.0, which was the computer projection  
on the neat sample and you said that was unreliable.

A. Yes.

Q. I see below in the one  
that had been diluted 2 in 1 that the reading is  
10.6.

A. Yes.

Q. Is that the reading for  
the actual sample, that is, the diluted one came  
out 5.3?

A. I cannot tell you that  
specific information on the basis of the information  
in front of me.

THE COMMISSIONER: No, it was off  
the limit, wasn't it?

MS. SYMES: Certainly. My  
question is, does this computer work in terms of  
when it projects the results beyond the control, be





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2

it 4.7 or 5 --

3

A. Beyond the top standard.

4

Q. Yes. Is it more reliable

5

the closer it is to the top standard, that is, if

6

the result -- let's suppose the top standard is 5 --

7

A. Yes.

8

Q. -- and if it gives you

a reading of 5.1 --

9

A. Yes.

10

Q. -- or 5.2 --

11

A. Yes.

12

Q. -- is that more reliable

than if it gives you 8?

13

A. That is more reliable,

14

yes. On occasion with different assays you will

15

get an answer of minus 6 on a very high answer,

16

you know, in other words, it becomes totally

17

illogical when extrapolated very far.

18

Q. So, my question to you

19

then, Dr. Ellis, is that that 10.6 you obviously

20

wouldn't state with any absolute accuracy on that  
amount?

21

A. No.

22

Q. All right. But is it

23

likely to be less in error than the 16?

24

25





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A. Okay. I cannot tell you that information on the basis of this exhibit that you have given me because what it doesn't say in this book is 5.3 times 2, it just says 10.6.

Q. Yes, I understand.

A. I appreciate that it was done on a dilution times 2 --

Q. Yes.

A. -- but I do not know whether it is 10.6 according to the computer or whether it is 10.6 when you take the answer and multiply that answer by 2.

Q. Is there anywhere that you can check what it was?

A. Yes, I think I could check that.

Q. Could I ask you, Dr. Ellis, if you could, if it is physically possible, that you could find out what it is and have it on Monday, or whenever. That would be appreciated.

A. I will see what answers I've got on that.

Q. And you would agree with me that if on dilution it was 5.3 it is more accurate than if it were, say, for the other one, 16,





1

2

because the other one was done neat, wasn't it?

3

A. Yes, sure.

4

5

Q. And neat produced 16  
and if this one was 5.3 it is a lot closer to the  
standard?

6

A. Yes.

7

8

MS. SYMES: Thank you, and I  
appreciate very much your indulgence.

9

10

THE COMMISSIONER: That's fine.  
Thank you.

11

12

Now, Mr. Olah, you are not going  
to be too unhappy if you are not called on?

13

MR. OLAH: No, I think I will  
survive, thank you.

14

15

THE COMMISSIONER: You think you  
can wiggle in or fit in somewhere on Monday?

16

MR. OLAH: I would be grateful.

17

THE COMMISSIONER: All right.

18

Well, we will rise then until  
Monday at ten o'clock.

19

20

--- whereupon the hearing was adjourned at 4:53 p.m. until  
Monday, the 17th day of October 1983, at  
10:00 a.m.

21

22

23

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